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THE
ETHNOLOGICAL JOURNAL.

JULY, 1865.

ETHNOLOGY AND ANTHROPOLOGY:

ARE THEY DISTINCT SCIENCES, OR ONE AND THE SAME SCIENCE UNDER
DIFFERENT NAMES?

- I. **INTRODUCTORY ADDRESS ON THE STUDY OF ANTHROPOLOGY.** Delivered before the Anthropological Society of London, February 24th, 1863, by JAMES HUNT, Ph.D., F.S.A., F.R.S.L., Foreign Associate of the Anthropological Society of Paris; President.
- II. **ANNIVERSARY ADDRESS.** Delivered before the Anthropological Society of London, January 5th, 1864, by JAMES HUNT, Ph.D., &c., &c.; President.
- III. **ANNIVERSARY ADDRESS, &c., &c.** Delivered January 3rd, 1865, by JAMES HUNT, Ph.D., &c., &c.; President.
- IV. **REVIEW OF THE PROCEEDINGS OF THE ANTHROPOLOGICAL SOCIETY OF PARIS.** By M. PAUL BROCA, Secretary-General, Honorary Fellow of the Anthropological Society of London. Delivered June 4th, 1863.¹

HAD the question with which we head this article been proposed for discussion some five or six years ago, the reader would have supposed, as many doubtless will even now suppose, that the object of the argument was to settle some nicety of definition, or to discuss some suggestion relative to a future distribution of scientific labour; but had any well-informed student of the science of man been asked at that time whether there was any serious distinction between the aims and labours of anthropologists and those of ethnologists, the answer would most decidedly have been, None whatever: the aims are so identical, the labours so alike, and the names so much an accident, that had the two words been turned out of the wheel of a lottery, and distributed to the several writers at perfect random, every one would have been sure of receiving an appropriate designation. In fact, many have used both names indifferently, and it has mainly depended on the country of the writer whether he adopted the one or the other. The Germans

¹ From the "Anthropological Review," No. 2, August, 1863.

have preferred anthropology, as the term used by Blumenbach and many early naturalists; the English have chiefly patronized ethnology, as introduced at a time when the subject had been invested with a broader interest, and had claimed the attention not only of the naturalist and anatomist, but also that of the traveller, the historian, the antiquarian, and the philologist. England and America, having a common literature, have moved together in this matter; while France has taken an intermediate position, being the first to adopt the word ethnology, though still using anthropology more freely than English writers have done.

This, in substance, is the answer which any well-informed student of the science of man would have given six years ago, nay, even three years ago, had such a question been put to him. But at that time no such question would have been put to him, unless by one quite unacquainted with the subject.

But now, within the brief space of two years and a half, all is changed. Now, we have suddenly learned that profound differences exist, and always have existed, between ethnology and anthropology: that ethnologists have always had one aim and anthropologists another, though both, somehow, have been quite unconscious of the fact. That, however, is their affair. If they did not know their own thoughts, they ought to have known them; but, at all events, we know them. A new exegesis has revealed the true meaning of the ancient records, and shown how wonderful is the harmony between yesterday and to-day. In all times, ethnologists, especially English ones, have been, as they still continue to be, a narrow-minded set of workers and thinkers; while, in all times, anthropologists of all nations and races, but particularly those of Germany and France, have had great and glorious aims, comprehensive and deep views, even when their modesty has left them wholly ignorant of the fact.

This great accession of knowledge, which is to revolutionize modern thought, and make brilliant discoveries in the thoughts of old, has come upon the world almost with the suddenness of magic. All is the immediate result of one fortunate event—the establishment of the Anthropological Society of London. Before this event, these things were wholly unknown, and but for it they would never have been heard of till the day of doom, when all secrets must be revealed. Now they are history, and, of course, like all history, true.

Now, the establishment of a scientific society is usually a very simple, and mostly a very meritorious affair, and we see nothing in the establishment of the new society to make it an exception to the rule. But it is

well known that societies are apt to be very passive bodies, and that, as regards their public acts, they are just what their few governing members make them. The Anthropological Society of London has a long list of names, and among them many of high eminence, and most deserving of respect; but some, and possibly most of them, have as little to do with the great events which we are chronicling as the people of Timbuctoo or Cochin China. The body of the society is one thing, the soul quite another; and therefore this is one of those cases in which we may agree, with Professor Huxley, that there may be an immense gulf in function, where there is but a slight difference in structure. It is of the soul that we now speak. The body is, like any other decent body, moved hither and thither as its soul directs, and sometimes, we doubt not, is very much astonished at the queer positions in which it finds itself, and the queer antics it is made to play, and the wonderful things for which it becomes responsible. We sympathize with this body, and pity its high destiny, and could well wish it a fate more in consonance with our own lowly aspirations, but we cannot allow to it any of the credit due to the new discoveries. These belong exclusively to the ruling spirits, to the new race of anthropologists which has suddenly risen in our midst, a race not growing up slowly from youth into maturity, from the student into the master, but, like Minerva issuing from the brain of Jove, bursting upon us at once, as full-blown anthropologists, speaking *ex cathedra*, legislating *en matre*, and displaying an erudition ten times as great as it would have been possible for any one else to have acquired in ten times the time which, upon any calculation, they can have given to the subject.

In the midst of this riotous outburst of life, this rattle of new voices, this flood of unexpected light, old ethnologists, and old anthropologists too, have to rub their eyes and ask themselves whether they be awake or dreaming; for, if they are to enter into the spirit of the new era, they must look upon the past as Cimmerian darkness, and learn to forget their labours, their writings, their aims, their very consciousness, and come to the feet of these new masters, who, by the way, have been thus far so busily engaged in proclaiming their mission that they have not yet found time to prove it.

The principal exponent of these new lights, in fact the *fons et origo malorum*, is Dr. Hunt himself, the President and Founder of the new society, and the revelation has evidently come to him with the society itself. Before the formation of this body, no one, as far as we can see, had the least idea that either Dr. Hunt, or any other person in this country connected with the study of man, had ever complained of any narrow-

ness of scope in ethnology, or supposed that any difference but that of name existed between it and anthropology, though narrowness of view, in the case of individual writers, has always been a subject of complaint, not only in the case of ethnology, but in that also of every other science, not even excepting anthropology, the last and best of them all. But, at the period in question, Dr. Hunt was known to us all simply as an energetic and zealous secretary of the Ethnological Society of London; and, could he have infused into this body the kind of action which suited his own energies, we see no reason for imagining that any such idea as the superiority or distinctness of anthropology would ever have presented itself to his mind. Dr. Hunt, we think, mistakes himself: it is not science that is a necessity to him, but action.

We certainly heard complaints of the "slowness" of the ethnological body in this country, and of the too great preference given in the Ethnological Society to certain sections of the subject, to the comparative exclusion of others of greater importance; but such complaints, whether just or unjust, touch individuals and not the science itself; and such was the view then universally taken of them, as far as we are aware of. When the idea of a new society was proposed, those asked to join in the undertaking were not given to understand that the object of this society was to found a new science, or to cultivate one new in this country, or anything of that kind; on the contrary, they were asked to co-operate in the establishment of an Ethnological Society which should carry out certain objects not sufficiently attended to in the existing society. To some the new society was chiefly presented as a publishing body, to others as one which would devote great attention to the anatomical aspects of ethnology, and to others, again, as an arena for the free discussion of the various exciting questions which current events were bringing into prominence. But, so far was any idea of a new or distinct science from being thought of, that the society was determined upon before any name for it had been settled, and, when the matter was discussed, the word anthropological was adopted simply for three reasons: first, as being sufficiently appropriate; secondly, as not liable to be deemed invidious to the old society, by interfering in any manner with its name; and, thirdly, as sanctioned by the example of the Anthropological Society of Paris. Under these aspects the word was not only countenanced, but positively recommended by those who would not for a moment have admitted the idea of its involving any scientific distinction.

Subsequently, indeed, this idea was thrown out as a matter of discussion; but it was based simply on definition, and the discussion

turned not upon what actually *was*, but rather on what *ought* to be. As *ethnos* means a nation, it was contended that ethnology ought to be the science of nations merely; while, as *anthropos* means a man, anthropology ought to be the science of man generally. These reasons were opposed, as altogether superficial and untenable, and were only offered in the light of suggestions, or of individual opinions, and not in any manner as regulating the action of the society. Had it been otherwise, we do not see how the society could have come into existence at all, under the circumstances. When still later, however, these views were formally broached in Dr. Hunt's Inaugural Address, the society was then formed, and it could not be contested that the president had as much right to express his individual opinions as any other member; but the manner in which the affair was managed gave serious dissatisfaction.

In this address anthropology is defined as "the science of the whole nature of man;"¹ and to this definition we have not the least objection, for we are not quarrelling with anthropology, but simply defending its synonym, ethnology. Perhaps we may be asked if any such definition had ever before been given of ethnology. We answer, Yes; and even a broader one; but, if definition constituted a science, the science of anthropology would now be more than three hundred years old, since we learn, in Dr. Hunt's third address, that the word is defined in the modern sense by Galeazzo Capella, in 1535, and has been similarly used by Blumenbach and other writers.² If, on the other hand, a science is just what its facts and its laws make it, how can its limits be in any manner dependent on the accident of its technical name, or on the early definitions given of it? Yet Dr. Hunt sees nothing beyond these accidents. According to the whole tenor of his argument, a science is just what the original meaning of its name implies, and nothing more nor less. According to this formula, geometry would be strictly limited to the business of land-surveying, biography would be the descriptive portion of biology, or the latter would be the science of Insurance companies, or of Cookery, or of Medicine, or of all four together, while physiology, instead of confining itself to the study of vital functions, would have to encounter the additional burden of universal Cosmology. Dr. Hunt's argument forgets that language was made to be the servant of thought, not the mistress, and that man is "the interpreter of nature," the discoverer of the sciences, not the legislator, nor the arbiter of limits.

¹ Introductory Address, 1863, p. 2.

² Anniversary Address, 1865, pp. 9—12.

- The Inaugural Address next proceeds to deal with ethnology and ethnography as follows:—"While ethnology treats of the history or science of nations or races, we have to deal with the origin and development of humanity. So, while ethnography traces the position and arts of the different races of man, it is our business to investigate the laws regulating the distribution of mankind" (p. 2.) But how we are to form a *science* of races without studying their origin and development, or how study these individually without thereby studying them aggregately, and thus studying the origin and development of humanity itself, are matters on which no light is thrown by Dr. Hunt, either here or elsewhere; neither are we shown the utility or practicality of having one science for the study of races, another for the study of their position, and a third for the study of the laws of that position! It is clear that Dr. Hunt, as we have said, is here confounding the original meaning of words with their technical uses, and confounding the subject of terminology altogether with the inherent necessities of science itself.

In the Anniversary Address of 1864, p. 2, Dr. Hunt writes:—"We are indeed trying to do something more than founding a new society: we are endeavouring to found a new science. I make bold to assert that no society has ever before attempted in this country to found a science of man or mankind." Here Dr. Hunt is clearly making a confusion of ideas between societies and sciences. As if any society ever did or could create or found a science! As if sciences were not the creations of individual workers, often of ignored and persecuted workers, and by none more ignored than by scientific bodies! As if, in fact, the existence of this very society could have been in the least possible, if anthropology had not already been a fully recognised science in this country—a science which had largely enlisted the sympathies of the intellectual public, and numbered a considerable body of special workers, whether under this particular name or under that of ethnology! Had Dr. Hunt come forward with a really new science, or with views or aims in any important degree original, or even seriously enlarged, he would have stood alone, until he had slowly and painfully made converts by his eloquence or his arguments. But no; he came before us with familiar views and aims; he collected together prepared minds; he added to these numbers of others who had no special knowledge of the subject, but who were willing to aid in forwarding a study which they saw was in high honour, and of which they could readily appreciate many of the advantages; and to call a proceeding like this an endeavour to found a new science in England

is a simple abuse of language. No doubt it is possible to find 'a sense' in which it would be correct to say that no society had ever before attempted in this country to *found* a science of man or mankind. But it would be utterly incorrect to say that no English society had before attempted to *study* the science of man or mankind. No doubt the Ethnological Society was not established with any such Quixotic notion as the creation of a brand-new science, or the introduction of such a science from some foreign region in which it was already known; nor would it be in the slightest degree reasonable to expect that in the year 1839 any society proposing to study man or mankind should have started with a programme as large and liberal as would be practical and safe in 1863. The Ethnological Societies, whether of Paris, London, or New York, were established at a time when the public mind was less enlightened and far less tolerant than it has since grown; at a time when it required more courage to be brave, and more caution to be prudent than it does in these days, when new men have entered on the possession of a wealth and freedom which others have created, and now affect to look down on those predecessors without whose labours and influence they could not hold for a single moment the position which they have assumed. Dr. Hunt has not imitated the noble example set to him by M. Broca, who, rather than diminish, by a single atom, the glory due to his predecessors of every name, would, in his generous admiration, even exaggerate their merits.

We cannot, of course, enter into a detailed criticism of the numerous passages in these Addresses which call for our dissent. We can only say, that the views taken of the aims and labours of both anthropologists and ethnologists are superficial and inaccurate, often in a high degree, while those presented, of the writings of ethnologists especially, are such as must utterly mislead all who are imperfectly acquainted with the subject. Dr. Hunt's quotations, in particular, are so fragmentary and so strangely manipulated that they not unfrequently amount to mere caricatures, while occasionally they prove the very opposite of what they are meant to show. Thus, for instance, we are told that "when Messrs. Nott and Gliddon, ten years ago, projected their book on the 'Types of Mankind,' it was distinctly put forward as a work on 'Anthropology.'"¹ But "Types of Mankind" is a purely ethnological book, and distinctly put forth as such, by men who never dreamed of considering themselves as anything else but ethnologists, and who knew that this was the name borne by all their fellow-labourers, whether in America or in England; and therefore the use of the word

¹ Anniversary Address 1864, p. 7.

anthropology, by such writers as Morton, Nott, Gliddon, Squier, &c., can only prove that it was in their time an obvious and well understood synonym, and not a distinction. And such is the fact; for we happen to know infinitely more of the opinions of these men, and of these times also, than Dr. Hunt has had any chance of knowing.

We have entered upon this criticism with anything but pleasure. But Dr. Hunt has compelled ethnologists to act on the defensive. Hitherto, indeed, they have been singularly apathetic in the matter, doubtless expecting that such extravagances must necessarily defeat their own object; but under cover of this passiveness the public are gradually becoming familiarized with these pretensions, and gradually taught to consider ethnology as a narrow and sectional pursuit, a mere department of the great science of anthropology, while its students are represented as factiously opposed to the just claims of "the new science," and especially to its recognition in the British Association, by a distinct section or subsection. Under circumstances like these, it is plain that, however anxious we may be to avoid antagonisms of all kinds, our position as journalists does not permit us to ignore these facts. It is the obvious duty of an ethnological journal to defend ethnology against unjust charges, to disseminate correct views of its nature and aims, and to chronicle and criticize current events, when they happen to bear upon it; nor can it rationally or safely leave the public to mistake the true character of its own labours, or, recognising them, to regard its title as a misnomer. But, so far from having any objection to a spirited and honourable rivalry between scientific bodies or scientific publications, we think, on the contrary, that such a rivalry may be made conducive to the best interests of science, and even a personal advantage to those engaged in it, and we shall heartily rejoice if all unseemly discords can be laid aside amongst us, while each maintains his own rights without encroaching on those of others.

Dr. Hunt has devoted nearly the whole of the third of his discourses to a proof of the superior antiquity of the word anthropology, and of the fact of the identity of its meaning in its ancient and modern applications. But the first of these points is not at all at issue, while his success in the second would be fatal to his general argument, since it would prove that the character and scope of the science of man were better understood in Italy three centuries ago, and in Germany in the days of Blumenbach, than it was in this country three years ago—a tolerably extravagant proposition. But the point at issue is not which term is the older, but which has first received general acceptance as the technical name of the science of man; and on this point there is no

room for any rational doubt. In France, in England, and in America, the three countries in which, until quite recently, the subject has received the greatest amount of attention, ethnology has been an established term for nearly a quarter of a century, having been adopted by three distinct societies, and seventeen years ago by a special journal, while the first anthropological journal is but three years old, and the first anthropological society but six; and it is obvious that this adoption of the word ethnology by three several societies holding frequent meetings, reading and discussing papers, and publishing transactions, and by a special journal zealously conducted and extensively and favourably noticed by the press, could not fail to fix public attention on the name adopted for the new science, irrespective of any special merit which it might possess, and notwithstanding the occasional use of other terms by individual writers, however eminent. Besides, as social distinctions, and the unity or plurality of human origins were then, as they still continue with many, the great questions of the science, and as the word ethnology had a distinct reference to these questions, there was an additional reason for the general preference accorded to it. And thus it has gradually passed among scientific men of all nations, and more especially wherever the English language is used, as a recognised, if not the only recognised technical designation of the science of man; and if the Germans are justified in adhering to the term first popularized among them, we do not see why the English and Americans may not claim a similar privilege. Neither do we see why a writer is to cease to be an ethnologist and to become something else, if he wishes to vary his phrases or to give some special application to his remarks by the use of such synonyms as anthropology, "natural" or "physical history of man," and the like, or why the habitual preference accorded to any of these synonyms must imply a distinction, and even a serious distinction, in the object of pursuit; yet this is the inference which Dr. Hunt has practically drawn, and often upon grounds the slightest and most untenable. Neither does it follow that because a writer has worked sectionally himself, he must necessarily suppose that the science to which those workings belong must be equally sectional, nor that because any writer, or even many writers, however eminent, have held narrow views of the scope of a science, that those views must therefore be the real scope of that science and always remain so; yet such is the spirit of Dr. Hunt's reasonings in all that concerns ethnology, though he makes no such applications in the case of anthropology, where we have workings and views equally narrow and sectional, and in as great a proportion also.

Thus far we have considered this dispute about terms and definitions mainly in its historical aspect; we must now, for a moment, look somewhat more beneath the surface and see what are the scientific realities implied in it.

To study ethnology, to study the scientific history of nations or races, even in the most limited sense of the term, is necessarily to study the physical history of man. Every description involving the structural or mental peculiarities of any of the various divisions of the human family is a portion of this history. If no one looked beyond the description, then the knowledge so acquired might be termed ethnography, and in this case ethnography could only be called a science by courtesy; for it would not embrace one of the most essential conditions of a science in the modern sense of the term—namely, the study of causes. Ethnography, in this view, might be limited or extended according to convenience; but the moment we pass from the simple observation of phenomena to the study of their relations and causes, we are working scientifically, and it no longer depends upon our will to limit the natural sphere of our pursuits. The natural boundaries of the sciences are matters quite irrespective of human convenience or conventionalities, and he who undertakes to limit or define is bound to show that the lines he draws are those which really belong to the nature of the subject.

It is almost superfluous to add that nothing of this kind has been done, or, properly speaking, even attempted, by those who have lately undertaken to set limits to ethnology.

We are told that ethnology is simply the science of nations or races. Let this be granted for the moment. We ask what this science is, what are its natural limits, what its appliances and resources? This we are *not* told, or we are told it in a manner so vague or so fragmentary that no clear impression is left upon the mind. As anthropologists have failed to satisfy us, or even to satisfy themselves on these important points, we must endeavour to supply the omission.

Man is a link in the chain of living organisms, an element in the great science of zoology, as that science is a section of the still wider sphere of biology; and therefore the natural history of man must have the same fundamental conditions and bounds as the natural history of every other animate being. It must comprise all that is necessary to a true and full knowledge of man, whether viewed in himself or in his relations to other existences. It must comprise his structure and his powers, whether physical or mental, his place in the scale of being, his relations to the world around him, his origin, his history, and, in so

far as they are discoverable, his destinies. This is the necessary programme of the natural history of every living thing, whether animate or inanimate. A history so complete is, of course, practically unattainable in any case; but all arguments based on any limitation of this ideal must be inherently erroneous to a greater or less extent.

The great and varied powers of man give an enormous extension to the range of his history, without in the slightest degree modifying its fundamental formula; and this extension necessitates a great division of labour on the part of its investigators. We have thus anatomists, physiologists, naturalists, mental philosophers, historians, antiquarians, philologists, &c., &c., all labouring to increase our knowledge of man, and all, therefore, more or less implied in that general survey which constitutes the aggregate science of his natural history. The "Natural History of Man" is, therefore, a term which covers the entire ground of the science subsequently known under the names of ethnography, ethnology, and anthropology; nor can future research, however ardent, successful, or long-continued, ever add to our knowledge a fact or a principle inconsistent with this title or needing its modification. All that is orderly, and in accordance with vital law, in the history of humanity, must necessarily be a portion of its "natural," in other terms, of its scientific history.

It rarely happens that the full scope and importance of any science is clearly recognised by its early students. Some question of interest arises, and attempts are made to solve it, first by the aid of existing knowledge, and gradually by special research. By degrees a new, perhaps a great science develops its outlines, often presenting proportions and connections little anticipated in the commencement. The science of ethnology has grown up much in the same way as all other branches of zoology. As differences among animals have been observed, classified, and their causes inquired into, so, at last, men become sufficiently observant of human diversities to examine them with care, to attempt their grouping, and to feel a curious and eventually a vivid interest in the ascertainment of their causes. As might be expected, naturalists led the way in this study, and, while some gave the name of anthropology to the new pursuit, others contented themselves with the more familiar phrase "Natural History of Man." There was no shadow of difference between the meanings attached to the two terms. Both referred to one and the same study, and both were originally ethnology—"the science of nations or races"—in the very narrowest sense of the word. No one, in fact, can with any reason pretend that the anthropology of Blumenbach was a broader or deeper science than

the "Natural History" of Lawrence or Desmoulins, or the ethnology of Prichard. The difference, indeed, is all in favour of the later writers.

Before, however, either of the original names had received any general recognition, or the study itself any general attention among scientific men, the word ethnography was introduced as an equivalent and more distinctive term; and in proportion as the question of race became more warmly discussed, the term which more directly referred to it became more and more used, and, when ultimately modified into ethnology, was speedily adopted, as already observed, by French, English, and American writers—in fact, by the then chief cultivators of the science.

But, though attention was thus early fixed on racial divergencies, no enlightened cultivator of the new science could be ignorant or oblivious of the fact that man, aggregate as well as sectional, was his theme; and, if he fixed his chief attention on the study of races, it was because race was the topic of his day, the battle-ground of his science—just as the origin of species, or man's place in nature, or his geological antiquity are the topics of our day. The conservatism of the times often prevented the open discussion of questions which are now familiar, but they were discussed in private, they were universally felt to be inherent in the subject, and were dogmatically and habitually decided against one set of ethnologists by their theological opponents.

Indeed, from the very outset, the question of the causes of racial differences was felt to be a general, not a special question. Universal zoology and even universal botany were laid under contribution, in order to furnish evidences of the influence of external agencies in modifying the living organism. The definitions of naturalists relative to the limitations of the terms "race," "variety," "species," and "genus" were carefully scanned, and the question of origins was either dogmatically decided in conformity with current opinion, or discussed as far as it was supposed that the temper of the times would permit, or left untouched from purely prudential motives. But it was not viewed, and indeed could not be viewed, by any earnest ethnologist as beyond the natural limits of his science. We have but to turn to the early volumes of Prichard, to those published even before the term ethnology had come into use, to see that, whatever may be the special conclusions of the writer, he differs in no respect in fundamental aim from his predecessors or successors in the study of man. How, in fact, could it be otherwise, or how are we to set any rational limits to the range of ethnology if they be not those inherent in the subject? Let us reflect for a moment on what these limits are.

To study the causes of human differences is to study their origin—their origin in time as well as in production. If the facts show, or seem to show, that this origin is remote, that it passes the bounds of history and recedes into the night of geology, how are we to exclude from the science of races the study of flint implements and shell mounds, and fossilized skulls and skeletons, and the raking up of bone caves and glacial drifts, and the other exciting elements of the question of man's first appearance on the earth, or of the fundamental unity or plurality of his types? It is simply ridiculous to tell the ethnologist to study the science of races, and in the same breath exclude from his sphere of research elements which are believed, by those who thus limit his range, to be essential conditions in the problem which he is commissioned to solve.

In like manner, if facts show, or seem to show, that the causes of human diversity are similar in nature to those which produce diversity in other animate beings, how are we to exclude the question of the origin of species, or that of man's place in nature, or that of his zoological relations to the lower forms of life? If ethnology is to do its natural work, the work which it has expressly undertaken, and which even anthropologists apportion out to it, it must grapple with the inherent conditions of that work, whatever they may happen to be, and whether they have been contemplated from the beginning, or have only become apparent in the course of the struggle. No matter how simple may have appeared our task yesterday, if new difficulties present themselves to-day, we must encounter those difficulties or abandon our undertaking altogether. If ethnology is to be a science at all, if we are not simply to *talk* about races, and describe manners, and customs, and physiognomies as a mere traveller or historian describes them, if we are to study the question of race in the sense of origin, cause, and inter-relation, the natural bounds of our inquiry are those here traced; and, if so, what is there left for anthropology but simply to take up the same ground, and be ethnology under another name; and this is precisely what it is, and always has been, and always must be, while it continues a name for the science of man.

Even then were we to merge all ethnological aims in the simple study of race, that study alone would necessarily carry us over the entire ground of anthropology, and even far beyond it too; for the laws of race are inherent in the plan of life, and the plan of life is fundamentally one and the same for all living things, and therefore to discover the laws of race in any one range of existences is virtually to discover them for all. Hence the advantage and even the necessity of

widening the sphere of our sympathies and labours; and yet, widen them as we may, ethnology will still remain a fit, a distinctive, and an amply comprehensive name. In this respect its position and relations are identical with those of the great science of anatomy: concentrating its chief attention on the study of man, and there finding its highest inspirations and most important uses, it nevertheless throws its glance over the entire field of vital existence, giving and receiving light. In the one case it is Ethnology proper, Human Ethnology, in the other, Comparative Ethnology.

Our name, then, is a larger, not a narrower term than anthropology. It emphasizes the great central fact which alone gives anthropology a meaning or a place. It bids us look beyond man, if we wish to understand man—to look for the laws of race in the great aggregate of living things, where facts are broad and definite and orderly, instead of wasting our energies on shadowy divergencies and infinitesimal details, which can rarely return a rational answer under the most favourable circumstances, and which usually present themselves in a very chaos of intricacies, through which no human ingenuity can trace a path until the laws of the phenomena have been elsewhere discovered. In a word, we shall search in vain for a genuine science of man until we thoroughly appreciate the fact that the study of race is its very essence, and must ever remain its principal occupation. A fortunate accident may, ere long, fix, as far as such things can be fixed, the proximate epoch of man's first appearance on the earth: his zoological place and relations are questions so nearly under control that they may even already be decided in the minds of some of our clearer thinkers, and the same may possibly be true of the great problem of the origin of species; but race and its relations, its harmonies, contrasts, interblendings, and antagonisms, its growth and its decay—this is the great staple of the science, this is practical anthropology: it is education, legislation, social organism, philanthropic plans—in a word, the great future business of man upon the earth as a ruler and a worker; and this anthropology is emphatically ETHNOLOGY.

Whether, then, it was accident or instinct that first concentrated attention on this word, no better or more characteristic term could have been selected; nor is it possible to see how its rejection now would entail any advantage beyond that of introducing uniformity in scientific nomenclature—a result equally attainable by the rejection of the word anthropology.

Such, in our view, are the relations to the science of man of these now rival terms. Few, if any, ethnologists will seriously differ from

our estimate of these relations, although many may think that we have over-estimated both the range and intrinsic importance of the science itself. On these points opinions will naturally vary; but those amongst us who narrow the sphere of ethnology will equally restrict that of anthropology, because, from first to last, all of us have had one fundamental object—a knowledge of human nature in all its discoverable phases.

Neither do we believe that, until quite lately, any anthropologist supposed that he was pursuing a different or broader science than ethnology. On the contrary, the majority of anthropologists, and especially the older ones, have been far more sectional and restricted in their range of research than ethnologists; for they have mainly studied the science as anatomists, and more particularly as craniologists, and therefore with extremely limited materials, and those often of a most treacherous character. If later anthropologists have widened the sphere of their sympathies, ethnologists have done the same, and to as great an extent. We see nothing in the one school, if such a term be at all permissible, which has not its full equivalent in the other; and if the science has a right to grow under one name, it surely has the same right to grow under another. Dr. Hunt, we doubt not, would scout the idea of taking the anthropology of Blumenbach as the measure of the modern science; yet he does not hesitate to speak of Prichard or Latham, or even less distinguished writers, as if they were to be criteria in perpetuity of what ethnologists have to aim at. All this is one-sided and uncritical in the highest degree.

Such, it appears to us, are the true nature and bearings of the opinions advanced by Dr. Hunt, and actively or passively acquiesced in by many of those with whom he is working, as well as by others who, but slightly acquainted with the subject themselves, very naturally look up to the president of their society as an authority in such matters. Were these simply theoretic opinions, they might very safely be left to the ordinary action of that silent criticism which quietly hands to oblivion so many errors; but, when we find them taken up by active and energetic men, and used as an important portion of their working machinery, they require to be met in a formal and emphatic manner. And this becomes all the more necessary when we find them countenanced by eminent recent writers who have little if any sectional feeling in the matter, but have simply been misled by superficial considerations. Thus M. Broca, the energetic and distinguished secretary of the Anthropological Society of Paris, in the paper referred to at the head of this article, a memoir full of interest, and conspicuous alike

for its unexceptionable tone and temper, its felicity of style and lucidity of treatment, also distinguishes between ethnology and anthropology. But, in this case, however widely we may differ from his estimate, it would be impossible to find any fault with it beyond that of being a defective argument. M. Broca does the fullest justice to the labours of his predecessors wherever he names them, and merely errs by confounding the individual character of those labours with the natural scope of the science to which they belong. He attaches too much importance to the original programme of the Ethnological Society of Paris, not sufficient to the necessities of the times in which it was established, and in like manner, we think, he too much overlooks the influence which the previous existence of that society must have had in determining the name of the new society which has taken its place, and continued its labours on a broader basis, with vastly increased energies and resources, and with an independence wholly beyond the reach of its less favoured predecessor.

The views of M. Broca claim special attention from the manner and the occasion of their announcement; for the Anthropological Society of Paris is so important a body, it has numbered and numbers, and among its working members too, so many illustrious names, and has already given to the world such a mass of valuable labours, that any opinion directly countenanced by it necessarily carries with it a considerable weight of authority; and the opinion in question has just that external plausibility which would readily recommend it to notice, while it so fully harmonizes with the natural leanings of such a body that its adoption might almost be calculated upon as a matter of course. It is thus, too, that it has recommended itself to some of our own recent writers also.

And now a word as to the British Association. If ethnologists believe that anthropology differs from their own science in name only, how can they support the claim of the Anthropological Society to have anthropology represented in the Association by a distinct section? or how are they to avoid opposing an arrangement which would stultify their own position? Were the Association to admit the validity of the demand, as urged by Dr. Hunt, it would simply proclaim its ignorance of the subject; while, if the general convenience permitted it to allot a distinct section for the study of man, all the rules of precedence and common fairness would require it to establish that section under the name of Ethnology. But we as yet see no reason for supposing that any such arrangement would satisfy the claimants.

Of course, we think that so important a science as that of man ought

to have a section of its own, whether convenient or inconvenient, but then those in power have a right to *their* opinion, and the new-comer must wait his turn, and make his way by degrees, unless by some splendid services he can carry his point by storm. The case, in fact, is one not for personal complaints and bickerings, but for calm discussion.

We are told that, if this claim be not granted, the Anthropological Society will summon an Anthropological *Congress*. By all means. Why not? If spirits *will* come from the vasty deep, why not have them? To make anthropologists is clearly the easiest thing in the world, and why they should not be created in thousands as well as hundreds we do not in the least see; all that we would stipulate for is that, when they come, they would leave us in peace and darkness, and turn the beams of their magic lanterns in some more profitable direction.

LUBBOCK ON THE UNITY OF MAN AND NATURAL SELECTION.

In his able and exhaustive work on "Pre-historic Times and the Manners of Modern Savages" Mr. Lubbock adopts the doctrine of the unity of the human race, that is, in its consisting of a single species branching into many varieties, and not of a genus consisting of many species; and this, as far as we can see, even on his own showing, on no better grounds than that it accords best with the theory of progression by "natural selection," of which, like many other ingenious and ingenious young philosophers, he is a profound worshipper.

"The preceding argument," says Mr. Lubbock, "assumes of course the unity of the human race. It would, however, be impossible for me to end this volume without saying a few words on this great question. It must be admitted that the principal varieties of mankind are of great antiquity. We find on the earliest Egyptian monuments, some of which are certainly as ancient as 2400 B.C., 'two great distinct types: the Arab on the East and West of Egypt, and the Negro on the South, and the Egyptian type occupying a middle space between the two. The representations of the monuments, although conventional, are so extremely characteristic that it is quite impossible to mistake them.' These distinct types still predominate in Egypt and the neighbouring countries" p. 476.

But not only the man of the Egyptian monuments, but the domesticated animals represented on them, have undergone no appreciable change, as we see in the examples of the ox, the horse, and the ass, which in form, size, and colour are the same as those of forty centuries ago. If, then, four thousand years have effected no changes, what right have we to fancy that forty thousand or four hundred thousand should do so? The imagination alone can help the advocates of the theory of "natural selection" to a solution of this difficulty; and assuredly it has been largely drawn upon. At a loss for facts to support a theory, it is not allowable to plunge into the inanity of time for them.

Our author supposes the first men to have been inhabitants of tropical countries, and to have lived like monkeys in trees, subsisting like these animals on wild fruits. If this were so, it would follow that the first created men were black, or brown, or yellow, or red, since no other men dwell within the Tropics; and it behoves the abettors of the new theory to tell us how in some cases they turned white, and in others continued black, or brown, or yellow, as they spread from the Tropics to temperate, and ultimately to cold regions. But there exists no race of men, and assuredly never could have existed one, living in trees and feeding, like monkeys, exclusively on their spontaneous fruits. Monkeys, by their form, are made to live in trees, and are frugivorous; while man is made to tread the earth, and is omnivorous. No race of savages has ever been seen without a knowledge of fire to cook their victuals and to warm themselves; and most assuredly the most anthropoid monkey has never been known to kindle a fire or to put on clothing.

If the first men were created within the Tropics, and afterwards spread from thence to temperate and cold regions, how came this miraculous achievement for feeble savages to be accomplished? Mr. Lubbock's account is eminently contradictory. "It is too often supposed," he says, "that the world was peopled by a series of 'migrations.' But migrations, properly so called, are compatible only with a comparatively high state of organization. Moreover, it has been observed that the geographical distribution of the various races of man curiously coincides with that of other races of animals; and there can be no doubt that man originally crept over the earth's surface, little by little, year by year, just, for instance, as the weeds of Europe are now gradually but surely creeping over the surface of Australia" p. 476.

In this paragraph Mr. Lubbock truly says that migration, properly so called, is compatible only with a comparatively high state of civili-

zation; that is, with the possession of a certain amount of resources. And after this admission he forthwith represents man peopling the earth by creeping over its surface "little by little, year by year." But is not creeping over the earth's surface just as much migration as crossing the Atlantic or the Pacific? The difference is only in degree, just as the creeping of the snail is as much locomotion as is the swift pace of the antelope. Migration is simply a change of place or residence, and has nothing to do with the manner in which the action is performed. Are wide deserts, marshes, and forests, broad rivers, rough and broad seas, and high mountains to be crossed by "creeping"? The author of the new theory ought to tell us what possible motive could induce the savages of the Tropics to quit the languid life of warm climates to tempt the dangers, difficulties, and inevitable privations of temperate climates and the worse of cold ones. In his recent work, the "*Exodus of the Western Nations*," Lord Bury, who has had much personal knowledge of savages, has formed a juster estimate of their capacity for migration. "One of the most remarkable circumstances relating to the early history of America," says he, "is the complete isolation of each petty tribe. Each was ignorant of the very existence of any other nations than those they met in their hunting excursions."

The illustration of the creeping of European plants over the surface of Australia is an unhappy one. A few of the weeds of Europe have been spreading over Australia, no doubt; but they did not get there by creeping, but through organized migration, the work of man. They live and thrive only in climates suitable to them, which excludes the tropical and subtropical parts of the country, embracing one half of the whole continent. The pine-apple, a native of tropical America, will grow, and even become a weed, in any hot climate whatever, but perishes in any cold or even temperate one. This creeping theory will not do.

The argument for the unity of man has been much insisted on by Mr. Alfred Wallace, in a memoir which Mr. Lubbock describes as "admirable." For ourselves, we recognise in Mr. Wallace a skilful naturalist and a judicious, observant, and enterprising traveller; but we can discover nothing to admire in his argument for the unity of man, except its ingenuity and the courage with which he tries to ride ever insuperable difficulties. Here is Mr. Wallace's account of his doctrine:—

"By the capacity of clothing himself, and making weapons and tools, (he) has taken away from Nature that power of changing the external form and structure which she exercises over all other animals. . . .

From the time, then, when the social and sympathetic feelings came into active operation, and the intellectual and moral faculties became fairly developed, man would cease to be influenced by natural selection in his physical form and structure: as an animal, he would remain almost stationary; the changes of the surrounding universe would cease to have upon him that powerful modifying effect which it exercises over other parts of the organic world. But from the moment that his body became stationary, his mind would become subject to those very influences from which his body had escaped. Every slight variation in his mental and moral nature which should enable him better to guard against adverse circumstances, and combine for mutual comfort and protection, would be preserved and accumulated; the better and higher specimens of our race would therefore increase and spread, the lower and more brutal would give way and successively die out, and that rapid advancement of mental organization would occur which has raised the very lowest races of men so far above the brutes (although differing so little from some of them in physical structure), and, in conjunction with scarcely perceptible modifications of form, has developed the wonderful intellect of the Germanic races" p. 479.

Now, we ask, what possibly can Mr. Wallace know of the state of man before he was clothed and armed, except through his imagination? In order to procure food and to defend himself, man must have used a club, however rude, from the first moment of his creation, and he must have clothed himself with the skin of a wild beast as soon as he felt cold. Man, therefore, was armed and clothed from the very beginning, and there was consequently no interval of time for the transubstantiation by "natural selection," which is supposed, but never proved in a single instance to have operated on the lower animals. Many of the inhabitants of America, the Australians, the Papuans and the Andaman islanders, are at this moment almost as destitute of the constraint of clothing as at their creation; but it cannot be shown that they were ever otherwise, nor that "natural selection" has made any more change on them in that condition than it has done on the Egyptians, who have been well clothed for probably not less than ten thousand years.

The following passages from Mr. Wallace's dissertation are very eloquent, but also very dreamy; and we must observe that he makes a tremendous leap when he jumps from the first club and skin to the planting of the first seed, the beginning of agriculture, which implies a very advanced stage of man's progress, probably preceded by the taming of the dog. Not one of the tribes we have above enumerated has yet arrived at the agricultural period.

"From the moment when the first skin was used as a covering, when the first rude spear was formed to assist in the chase, the first seed sown or shoot planted, a grand revolution was effected in Nature, a revolution which in all the previous ages of the world's history had had no parallel; for a being had arisen who was no longer necessarily subject to change with the changing universe—a being who was in some degree superior to Nature, inasmuch as he knew how to control and regulate her actions, and could keep himself in harmony with her, not by a change in body, but by an advance in mind. Here, then, we see the true grandeur and dignity of man. On this view of his special attributes we may admit that even those who claim for him a position and an order, a class or a sub-kingdom by himself, have some reason on their side. He is, indeed, a being apart, since he is not influenced by the great laws which irresistibly modify all other organic beings. Nay, more: this victory which he has gained for himself gives him a directing influence over other existences. Man has not only escaped 'natural selection' himself, but he is actually able to take away some of that power from Nature which, before his appearance, she universally exercised. We can anticipate the time when the earth will produce only cultivated plants and domestic animals; when man's selection shall have supplanted 'natural selection;' and when the ocean will be the only domain in which that power can be exerted which for countless cycles of ages ruled supreme over the earth" p. 481. What a sportive exercise of the imagination do we not find in these passages!

In his admiration of the Darwinian hypothesis, our ingenious author concludes his eulogy in the following inordinate terms, little short, in our judgment, of naked extravagance:—

"Thus, then, the great principle of natural selection, which is to biology what the law of gravitation is for astronomy, not only throws an unexpected light on the past, but illuminates the future with hope; nor can I but feel surprised that a theory which thus teaches us humility for the past, faith in the present, and hope for the future should have been regarded as opposed to the principles of Christianity, or the interests of true religion" p. 481.

We entirely agree with Mr. Lubbock in believing that the theory which begins with a monad, and rises to the dignity of an ape, ending in man, is utterly harmless both to religion and morality. We object to it only because it is an unsubstantial dream, the vain figment of a teeming fancy, albeit shored by much knowledge, and buttressed by a world of ingenuity.

J. C.

REMARKS

ON THE INSUFFICIENCY OF MERELY ANATOMICAL DESCRIPTIONS OF THE
CRANIUM IN THE STUDY OF ETHNOLOGY.

To the Editor of the ETHNOLOGICAL JOURNAL.

DEAR SIR,—I am rejoiced to hear that we are to have an Ethnological Journal, and still more so that the task of editing it has fallen to one whose past writings not only afford a sure guarantee for the ability and impartiality with which it will be conducted, but authorize us to indulge in pleasing anticipations of the intellectual feast we have in store, in discussing the scientific viands to be provided for us by the editorial pen. The advent of this new publication seems an opportune moment for drawing attention to any errors, or supposed errors of method, in the cultivation of our science, and I am desirous of giving utterance to certain ideas which have been suggested to me by what I conceive to be the unsatisfactory character of the descriptions given on various occasions of human remains. I will mention, in particular, the Neanderthal skull, and the interesting series of skulls from Caithness, for which we were indebted to the antiquarian researches of Mr. Laing. As long as we are content to look at skulls merely with the eye of anatomists, taking cognisance only of the mechanical details of their structure, so long shall we remain blind to their higher significance as an index of the mental attributes of their owners—an epitome of the individual in all that regards that sentient life, of which the evolution and manifestation have been the final object for which all the other subordinate systems and functions of the body have been called into being.

Thus the Neanderthal skull was compared to the Australian, of which, by-the-by, there are several varieties. Taking, however, as was doubtless intended, the one which has come to be conventionally regarded in Europe as the Australian type, no skulls could well be more dissimilar in shape, with the single exception that the profile of both is low and receding. Imagining a horizontal section just above the glabella, the curve of the forehead in the Neanderthal skull is good, probably above that of the existing inhabitants of Europe, affording indications of a long and wide anterior lobe; whilst, in the Australian skull, the outline of the same section of the forehead, in place of a good curve, presents an approximation to a triangle, indicating the short and triangular, or tapering forward anterior lobe which marks the lower races of man. In addition to these errors, I conceive ethnologists should have been in a position to recognise, what is unquestionably the fact, that the Neanderthal skull presents a well-defined

specimen of a type by no means extinct in Western Europe. Strange to say, the Caithness skulls, though possessing no characteristic resemblance to the Neanderthal, were also compared to the Australian, for no other reason, apparently, than that the latter at present supply the ideal type of the low coarse organization more or less indicative of rude uncivilized races; that is to say, are coarse and heavy, with the ridges for the attachment of muscle salient, and the coronal region shelving off laterally.

We owe to Dr. Gall the important observation that the more fundamental and essential the function of an organ, the more is it seated towards the base of the brain and the mesial line. Thus the organs conservative of organic life are seated at the base of the brain; and breadth at this part is always indicative of vigour of physical constitution and great reparative vital power. Now this part of the brain is frequently well developed in the lower races of man; and the same remark applies, though in a somewhat less degree, to the portions seated on the mesial line, and forming the profile. If, then, we form a hoop of wire to represent the outline of the section of the head of a savage at the level of the top of the ears, and attach to it another wire, giving the curve of the mesial line or profile, such a rough sketch of the head gives no indication of the distinctive characteristics which distinguish and separate the heads of the higher and lower races of mankind. Now unfortunately these two outlines seem the only portions of the curved surface of the cranium to which the attention of non-phrenological ethnologists is directed, and consequently their descriptions are of necessity in the highest degree unsatisfactory. The complementary and distinctively human faculties—the Corinthian capitals of the edifice—in conformity with the law we have mentioned, are seated in the superior lateral parts of the head, and expressed by the contour of the transverse lines, which leave the mesial line at right angles, and connect it with the base. These are never seen well arched in savage races, nor in those Ishmaelites of civilization, the criminal classes of Europe, whose ranks are mainly recruited from strains of savage blood welling up amongst its populations.

The contour of a skull—in other words, the character of the curves which define its outline—is an attribute, *sui generis*, quite distinct from its anatomical details, and not necessarily best, or even well, appreciated by the same class of minds that excel in the discrimination of the latter. The most important and fundamental part of a skull, as regards its structure, the most essential portion to the conservation of animal life, the richest in anatomical details, and consequently the most interesting to an anatomist, is the base; whilst, on the contrary, it is the greater or less expansion, and the beauty of the curves of the spines of the cranial vertebræ, the frontal, parietal, and supra-occipital bones, the portions of the skull of least importance in an

anatomical point of view, which determine the contour of the skull, the capacities of its owner for civilization, his intellectual and moral rank as a man.

Non omnia possumus omnes. A man may be a very clever anatomist and a connoisseur in all the mechanical details of osteology without much capacity or any genius for appreciating the proportions of curved lines; and to go to such an individual for an ethnological estimate of a cranium is like going to an antiquarian or a potter for an opinion on a Greek vase. You may get a disquisition on some peculiarity in the pattern of the ornamentation on its border, a criticism on the mode of attachment of the handle, or some constructive detail; but you are not likely to learn its rank as an æsthetic production, or the idea embodied by the designer in the symmetry of its curves.

As regards the examination of human remains, if we would make anything of the pursuit beyond a study of dry bones, if it is not to remain a mere hunting and skirmishing ground for *savans* profound in processes and foramina, and learned in sesquipedalian names, but is to be made a fruitful district contributing its quota of corn, wine, and oil to our growth in intellectual stature; if, in short, we would clothe the dry bones with flesh, light up again the lack-lustre orbits with that soul of expression the human eye, and adorn with crisp black ringlets, or flowing auburn tresses, the denuded summit of the dome; if, finally, we desire to possess the ability to reproduce the individual in person, with all his distinguishing characteristics of stature and features as he lived and breathed—and less than this ought not to content us—I am profoundly impressed with the conviction that success is only to be obtained by reading the past through the light of the present. Instead of plunging into a sea of speculation which never can land us on any other than a barren shore, we must seize the facts within our reach, and trace the chain of sequence backward link by link. Did we possess a classified collection of the skulls of the living types, our contemporaries, accompanied with wax-work figures or coloured portraits; could we succeed in identifying the disentombed relics of a long-buried past with the specimens in our museums, who can doubt that the races thus identified would stand in the relation of progenitors and descendants, or that we should possess in the latter the materials for recreating the former?

In short, I am more and more convinced that it is by forming museums and studying their contents, and by these means alone, that we can ever hope to succeed in placing Ethnology on such a solid basis as will enable it to exhibit that unfailing credential of a true science—the power to recreate the past and prewise the future.

T. SYMES PRIDEAUX.

THE PLACE OF MAN IN THE ANIMATE SCALE.

BY LUKE BURKE, ESQ.

AMONG the many interesting questions which have of late assumed prominence in the discussions of ethnologists, there is scarcely one of more interest or importance than that of the place of man in the animate scale; for it is one which adds to its own peculiar difficulties and excitements those of the still broader question of the origin of species. The universal instinct of humanity, in all times and in all places, has separated man from the rest of the animate world by a gulf so broad and impassable that, in technical language, it cannot be expressed by any narrower line of demarcation than that of a kingdom; and yet, by the recognised rules of scientific classification, we seem compelled to believe that universal instinct is here at fault, and that the concurring and unbiassed judgment of high and low, peasant and sage, savage and civilized, has in this instance culminated in a grave and even palpable error. I confess that it seems to me a serious responsibility thus to conflict with a universal feeling. There are, doubtless, cases, and numerous cases, in which the popular voice is simply worthless when opposed to that of the learned; but there are also cases, and not few in number either, in which that voice is the conservator or interpreter of truths which learning has overlooked or misconceived. We must then discriminate between case and case, between the circumstances which would give natural weight to a general opinion and those which would tend to represent it as a simple result of ignorance or prepossession.

When an opinion is simply dogmatic and traditional, held by this man because it has been held by that man, generality of assent may mean nothing more than the multiplication of credulities. But when a conclusion starts up spontaneously to every individual mind, when every man must think it out for himself again and again, innumerable times, and under every variety of circumstances, until it becomes part and parcel of his intellectual life, then assuredly universal opinion is not a matter to be lightly dealt with, since it is the expression of an infinitude of separate reasonings, all concurring in one and the same conclusion. It would be impossible, I think, to point out a case in which such a concurrence has proved altogether fallacious. Its existence can only be possible where facts are numerous and plain, and the conclusion from them, to a certain extent at least, inevitable; and it can never therefore be prudent to deal lightly with decisions of this class, or reverse them on any but the most decisive evidence.

But there is even more than this to be said for this particular conclusion. Those who oppose it do so theoretically only, do so in their characters of scientific men. In the world of action, in all the relations of practical life—whenever, in fact, they happen to be out of sight of their technical laws—they conform to it as instinctively and irresistibly as the most ignorant of the masses. Is it possible that that can be true in theory which is untenable in practice? That we must think one thing as men, and the direct opposite as scientific men? That we must, to be reasonable, hold a conclusion which is never countenanced by any act of our existence? There is surely room here for grave hesitation. This is not a case in which science can rest upon its dignity and lightly supersede the verdict of the masses; on the contrary, it is one which eminently calls for self-distrust, one in which a reasoner ought to feel the necessity of looking around warily, lest he be walking amid snares; and this, doubtless, was the frame of mind in which the early opponents of the popular doctrine approached the subject, and in which, at the present day, it is still canvassed by many earnest and enlightened thinkers, who find it impossible to resist the weight of evidence which anatomy seems to bring in favour of the near relationship of man to the beast.

On the other hand, the argument bears with similar force on the side of science. Those reasons, one would think, must have been weighty and numerous which could have induced the early observers to reverse all their preconceptions, to battle with their instincts, to enter into possible conflict with their religious faith, and into certain conflict with the popular interpretations put upon that faith; and still more must we deem them weighty when we see the ready reception which they have met with, not only from naturalists and anatomists of every grade and school, but equally so from the general body of the learned, until at last they had almost ceased to be controversial, and had entered, as a constituent element, into the general knowledge of educated men.

It is obvious that, in a case like this, there must be much truth on both sides; but it is equally plain that there must also be some subtle illusion on the one side or the other, if not on both; and I propose in this paper to re-open this important question, and, while doing all the justice in my power to the conflicting arguments, to attempt to discover and dissipate the interposing illusions which prevent the convergence of the evidence towards one common conclusion.

In discussing this question some five years since, in the pages of "The Future" (No. I., April 1860), I was under the impression that

I stood altogether alone in venturing to contest, on purely scientific grounds, the long settled convictions of the scientific world. I have since learned, with equal surprise and pleasure, that so far from this being the case, I was not only labouring in most excellent company, but had even been long anticipated in the announcement of one of my leading conclusions; so that, so far from being under any necessity of apologising for my temerity, I have rather to guard myself from the possible charge of plagiarism, or, at all events, of discourtesy in having passed without notice the more or less parallel conclusions of the distinguished men who have lately discussed this question and dissented from the general opinion of their brethren.

It was not till two years after the publication of the article referred to that I became aware that the distinguished anatomist M. Serres¹ had also separated man from the inferior animals, by the line of a kingdom; and it was not till later still that I learnt that M. de Quatrefages had advocated the same view in his *Unité de l'Espèce Humaine*,² a work of which I had perused some chapters with great pleasure and admiration, without having alighted on the one which would have most keenly interested me. The perusal, last summer, of the "Essay on Classification"³ of Professor Agassiz, added two other important names to this list—those of Isidore Geoffroy Saint-Hilaire⁴ and the celebrated microscopist Ehrenberg;⁵ while M. Pouchet⁶ quotes Flourens as holding a similar opinion.

It was not, however, until turning to the *Histoire naturelle générale des règnes organiques* of Isidore Geoffroy Saint-Hilaire that the true historical position of this question became clearly apparent. In the second volume of this great work, the author has presented a brief but masterly sketch of the history of modern thought on the primary divisions of nature, tracing it back through mediæval ages up to its vanishing point in the philosophy of Aristotle—a history strangely neglected, practically unknown, and entailing on the author a long and laborious research. Looking to Linnæus, his contemporaries and immediate pre-

¹ *Comptes Rendus des Séances de l'Académie des Sciences*, t. xxxii., p. 107 (1851), and t. xxxvii., p. 699 (1853.)

² Ch. ii., p. 16, *Règne humaine*.

³ Lond. 1859, p. 98, *note*.

⁴ *Hist. nat. générale*, t. i., part 2, p. 167; Par. 1856.

⁵ *Das Naturreich des Menschen*; Berlin, 1835, fol.

⁶ *Pluralité des races humaines*. "Un intervalle profond, sans liaison, sans passage, sépare l'espèce humaine de toutes les autres espèces. Aucune autre espèce n'est voisine de l'espèce humaine, aucun genre même, aucune famille."—Flourens, "*Eloge de Blumenbach*," *Mémoires de l'Institut*, t. xxi.

decessors, for the origin and reasons of their division of nature into kingdoms, he was surprised to find a universal silence on the subject, and was thus led backwards, from author to author, until the source of the idea at last presented itself in the writings of the medieval alchemists.

Not only do we find in these writings the origin of the word *kingdom* as thus applied, but that also of the triple division of nature into mineral, vegetable, and animal. The sun is the king of stars, gold the king of metals, man the king of animals, and the *vine*, "the great vegetable," the king of plants; and with kings came, of course, in time, kingdoms. But the arrangement was completed slowly, and it was not till the seventeenth century that the term *kingdom* makes its appearance in the alchemical writings of France and Germany.

M. Geoffroy also shows that the binary division of nature into organic and inorganic, instead of being an innovation of the naturalists of the eighteenth and nineteenth centuries, is simply a return to the $\epsilon\mu\psi\upsilon\chi\alpha$ and $\alpha\psi\upsilon\chi\alpha$ of Aristotle, as constantly explained in the Peripatetic philosophy, not only down to medieval times, but even to the sixteenth and seventeenth centuries. For the $\epsilon\mu\psi\upsilon\chi\alpha$, or *animates*, were not a single group equivalent to the animal kingdom, but a great primary division subdivided into four such groups; viz., Plants or bodies which have simply a *nutritive* soul or life, *âme nutritive*;* Animals which are nutritive and *sentient*, and men who are nutritive, sentient, and *rational*. Thus Hermolaus Barbarus, in 1553, opposes the *inanimi* to the *animantes*, and divides the latter into plants, brutes, and men; and Freigius, in 1576, has "*corpus inanimatum et animatum*," the latter having the divisions "*vegetans, sentiens irrationale, et sentiens rationale*;" and so with several other writers, and more or less vaguely by a great number.

The arrangement into three kingdoms, however, when adopted by Linnæus, gradually superseded all previous adjustments; but it was not universally received by his distinguished contemporaries, nor has the old tradition ever ceased to be revived from time to time, even among the ranks of naturalists.

Many authorities have greatly multiplied the number of kingdoms: Daubenton, De Candolle, Carus, and Oken admitted *four*; Bory de Saint-Vincent and Nees d'Esenbeck *five*; Bischoff and the Abbé Mau-
pied *seven*; and the Russian writer Horaninow *eight*; and, if all thus proposed were admitted, we should have *eleven* kingdoms.

From these researches we see that, though the term "kingdom," as applied to man, is a term of late introduction, his separation from the animal world is an idea prevalent in science in all ages, not introduced,

* *Hist. n. at. gén.*, t. ii., p. 6, &c.

as some have supposed, by Albertus Magnus in the thirteenth century, but simply set forth by him with increased distinctness. In 1764 the four general classes of Charles Bonnet were—" (1) *Les êtres bruts ou inorganisés* ; (2) *les êtres organisés et inanimés* ; (3) *les êtres organisés et animés* ;" and " (4) *les êtres organisés, animés et raisonnables*." ¹ Adanson and Dauhenton make man the king of the three kingdoms—a view similarly taken by Vicq d'Azyr, Lacépède, the elder Geoffroy, Tiedeman, and some other German physiologists. Finally, the term *règne moral* was introduced into France, and the term *Menschenreich* into Germany. The *règne moral* of the Marquis de Barbançois² was rejected by the all-powerful school of Cuvier; the only dissentient among French naturalists, during the life of Cuvier, being Prince Charles Buonaparte,³ though, in the literary world, the idea was supported by Fabre d'Olivet,⁴ under the name *règne hominal*, and in Germany by Nees d'Esenbeck and some other disciples of Schelling. Thenceforth the human kingdom has not ceased to have supporters in Germany, few at first, but gradually becoming more numerous; while in France it has been chiefly accepted by men "versed alike in philosophical studies and in the natural sciences, such as, at present, M. Serres,⁵ the Abbé Maupied,⁶ Hollard,⁷ and Jean Reynaud. It is, however, M. Serres who has especially renewed amongst us what might be termed the almost constant tradition of the French school; for Cuvier, whose authority has given predominance for nearly half a century to ideas contrary to those of Adanson, Daubenton, Lacépède, and my father, was here but the continuer of Blumenbach, as *he* was of Linnæus."⁸

The human kingdom has also been admitted by several modern writers without its being thus named. Of these M. Geoffroy particularizes three: Longet,⁹ Babinet,¹⁰ who, in 1826, announced views concerning the necessity of assigning to man a separate place in nature

¹ *Contemplation de la Nature*, t. i., ch. ii., 1764.

² *Journal de Physique*, t. lxxxiii., p. 68, 1816.

³ *Osservazioni sulla seconda edizione del Regno Animale di Cuvier*, in the *Annali di Storia Naturale* of Bologna, 1830.

⁴ *De l'état social de l'homme*, t. i., p. 20, 1822. I take these references from the *Hist. nat. générale*, pp. 41—43.

⁵ *Comptes Rendus*, *ib.*

⁶ He proposes the term *règne social*. His views were expressed in 1846 and 7, in two courses of lectures given at the Faculty of Theology in Paris.

⁷ *De l'homme et des races humaines*, Par. 12°, 1853, pp. 108, &c., and 290.

⁸ *Hist. nat.*, *ib.*, p. 44.

⁹ *Traité de physiologie*, t. ii., p. 387, 1850.

¹⁰ *Sur la classification des sciences*, 1826.

"very analogous to those which are now beginning to predominate in science," and Grimaud de Caux,¹ who, in 1837, thus expresses himself: "There are in nature four forms of being very distinct—(1) *Inorganic or ponderable bodies*, (2) *vegetables*, (3) *animals*, and (4) *man*; these last three forms composing the division of organic bodies."

The views of Geoffroy himself have been announced since 1840, and in a more mature form in his lectures, in 1848, at the *Muséum d'Histoire Naturelle* and the *Faculté des Sciences*, and especially in the 7th chapter of the second volume of the *Histoire naturelle générale*.

Such is a brief and imperfect sketch of a most interesting history, handled by its author in a rapid but masterly manner—a history as yet too recent to be much known in this country, but well worthy of being carefully studied. For myself, wholly unconscious of what was thus taking place on the Continent, not simply among philosophers, but even among leading naturalists, I had approached this subject from the philosophical rather than from the naturalistic point of view, and had separated man from the rest of the animate world long before I had satisfied myself of the true character or designation of the group which he formed. On these latter points my views are, I believe, altogether new. I entirely coincide with M. Serres, Isidore Geoffroy, and M. de Quatrefages in separating man from the animal by the line of a kingdom, and even regard this line as far broader than that which separates the animal from the plant; but the whole tenor of my studies in natural arrangement compel me to look upon every case of a solitary class, or order, or genus, or even species, as a *prophecy*, and much more so upon that of a solitary type in so great a group as a kingdom. I therefore regard man as simply the *initial type* in a kingdom which I have named the *Intellectual kingdom*, *Regnum Intellectuale*, in view of the lofty mental attributes of a future hierarchy of existences of which the very lowest member is man.

Having thus called attention to the important position which this question has assumed in Continental science, I shall now follow out the subject according to the tenor of my own ideas, adding, as I advance, such further evidences as the recent treatment of the subject elsewhere has suggested.

§ I. CLASSIFICATION.

The question before us is clearly one of classification; and if by classification we mean a strictly natural arrangement of objects—such

¹ Article *Nature* in the *Dictionnaire pittoresque d'histoire naturelle*, t. v., 1837.

an arrangement as shall represent the things grouped and divided in a manner conformable to their inherent affinities and differences—it is evident that, if we can ascertain and correctly apply the essential laws of such an arrangement, we are at once furnished with ample means of coming to a correct decision on this question; for, in such a case, it certainly ought not to be a matter of difficulty to determine whether a particular group is separated from others by an extremely broad line of demarcation or by a very narrow one, by the line of a kingdom or simply by that of an order or family. Unfortunately, however, there is apt to be too much of precipitancy and hap-hazard in our reasonings, whether in science or out of it, and thus difficulties which would easily yield to a methodical treatment become sources of endless and fruitless controversies when discussed in a desultory manner. The present is pre-eminently a case in point. Studied without an assured guidance, its difficulties are of the most formidable kind; viewed in the light of the fundamental laws of arrangement, and all the facts point in one and the same direction, while the inference from them is unambiguous and irresistible. Such, at all events, is the impression which the examination of the question has made on my own mind. I therefore propose on this occasion to place it before the reader in the light of these fundamental laws, and to do so it will be necessary to determine with certainty the precise nature and proper application of these laws. This I shall endeavour to do as briefly as is compatible with intelligibility.

Natural arrangement may be viewed under two aspects. We may have to arrange an unsystematic group, a series of objects indefinite in their extent and in the character of their relations, or we may have to classify a group which constitutes a strictly definite whole and in which the parts are severally related and mutually necessary to each other. Were we to arrange the furniture of a house, the various productions of human skill, or the contents of a city or a kingdom, we should have to deal with indefinite and more or less unsystematic and accidental groups; while, if we had to classify the several portions of a piece of machinery, or the different systems and parts of a living organism, or the elements of such an aggregate as an animal or vegetable class or genus, we should have to deal with a systematic aggregate, and one consequently which might present not only a very definite series of affinities and contrasts, but even a very precise plan. In the former case, all we should have to do would be to arrange objects in accordance with their several natures; the question of interdependence, of origin, destiny, correlation, or aggregate plan, would

either not be raised at all, or, even if raised in any case, would have but slight, if any necessary bearing on our general conclusions. But, in the classification of a natural or systematic aggregate, these various questions cannot be neglected without risk, because they are inherent in the subject, and necessary to its perfect comprehension. In analysing a natural group it may be necessary to bring to bear upon it the light afforded by the study of some parallel group or of several such; and thus analogy will have to come into play, supplying tests on the one hand and suggestions on the other.

It is with groups of this kind, with systematic and natural groups, that the zoologist has to deal, and it is to such groups that the question before us has reference. We have to analyse the great natural group of animate organisms and determine whether, as it now stands, it is a perfectly consistent group, or whether it may not require subdivision into two or more groups of the same divisional name and rank as itself; in other words, whether it be one homogeneous kingdom, or whether it does not really embrace two or more kingdoms. But, in order to determine this point, we require to have clear views of what is to be understood by a kingdom; and this brings us to the consideration of the relation which this kingdom bears to other kingdoms. The animal kingdom is a great group of terrestrial existences, one of the leading divisions of terrestrial formations. It is not isolated therefore, nor are its relations with other kingdoms accidental or indefinite, but, on the contrary, it constitutes an element in a great aggregate, a necessary portion in a determinate sphere, that sphere being the planet Earth.

The question before us, then, is a portion of a higher question—viz., What is the number of great divisions or kingdoms contained in the planet Earth? Are they simply three, mineral, vegetable, and animal, or are they more numerous than this? But clearly we have nothing to do with anything beyond the sphere of the earth; we have to analyse a definite aggregate, to consider its intimately related parts, and therefore, were we to bring into calculation anything beyond it, we should simply fall into a confusion of ideas. When, in the infancy of knowledge, men talked of the kingdoms of nature, they spoke of the subdivisions of the universe, not those of the earth exclusively; and the divisions which they made were necessarily incongruous, since they assigned to the subdivisions of the earth the rank of great sections, in a case in which the whole earth itself was nothing but a constituent atom in the aggregate analysed. Thus, for instance, a *Sidereal* kingdom was spoken of in medieval times, thus giving the same divisional name and rank to the great aggregate host of heaven

as was assigned to the primary groups of one of its atoms. Such classification is wholly incongruous and unnatural, since it utterly confounds the true rank and relations of the objects classed. And yet this arrangement has been revived in recent times by two writers of high and deserved eminence—the great botanist De Candolle, and the present distinguished naturalist M. de Quatrefages.¹ Such an oversight could not have been committed had it occurred to either of these eminent writers to commence his study of the point by a careful consideration of the essential conditions involved in all natural arrangement. In modern science we have to deal not with indefinite, but with strictly definite, congruous, and systematic aggregates; and therefore we can never be justified in mixing up the *parts* of one group with the *totality* of another of equal or superior rank. Our first question ought to be, as indeed it usually is, expressly, or by implication—What is the character and rank of the aggregate to be subdivided? for on this will depend the number and rank of our primary subdivisions. Had such a question been asked in the instance referred to, the answer would have been the universe, or the earth. If the former, the smallest primary groups that could have been made would have consisted of stellar systems; and we could have nothing to do with animals or vegetables until we came down to the subdivision of individual worlds—of individual suns, or planets, or moons. On the other hand, if the answer was the earth we inhabit, then all that did not strictly come within the sphere of this planet formed no portion of our inquiry, except in so far as it might afford us the guidance of analogy or law. In this view of the matter it is perfectly obvious that a “sidereal kingdom” not only standing in the same group with an animal, vegetable, and mineral kingdom, but actually lower than the two former, if not lower than all three, is a pure incongruity. As anything approaching to a correct classification of the universe is, in the present state of science, quite out of the question, we must understand the phrase “kingdoms of nature” as referring exclusively, at the present day, to the great groups of the planet we inhabit. When we are able to put order into our ideas of stellar groups, we must invent other and higher names for our primary divisions.

The first division of the mundane sphere gives us two great sections, the Organic and the Inorganic, and the primary groups into which each has been divided have been designated by the name of kingdoms. So far, there is, we believe, no ground for disagreement between modern students. The twofold division, though not always taken into

¹ *Unité l'espèce humaine*, p. 3, &c., 1861.

account, is so obvious and proper that no one can well object to it, when once pointed out. And the term first suggested for it by Pallas,¹ and so distinctly approved of by Isidore Geoffroy and M. de Quatrefages—viz., that of *Empire*—is characteristic and convenient, and may very well be adopted as preferable to the term *World*, usually employed in English writings. We shall thus have, instead of an Organic and Inorganic *World*, an Organic and an Inorganic *Empire*, each subdivided into kingdoms.

Three terrestrial kingdoms have been universally recognised—the animal, the vegetable, and the mineral; it remains a question whether these be sufficient—whether we should not also recognise, in the inorganic empire, an *Aqueous*, a *Gaseous* or *Aerial*, and an *Ethereal* kingdom, and whether, in the organic, we must not superadd a *Human* kingdom, or, more consistently, an *Intellectual* kingdom, of which man is simply the commencement. We need not further concern ourselves in this argument with the inorganic world: our business is to consider whether the animal kingdom, as it stands, be really a consistent group, or whether it may not be necessary to separate man from it. To proceed in this inquiry with anything like security, we must first distinctly formulate the necessary conditions of all natural arrangement.

§ II. GENERAL LAWS OF ARRANGEMENT.

As the essential object of all consistent arrangement is to exhibit, in the most perfect manner attainable, the nature and relations of things to be classed, and thus to be a diagrammatic representation and summary of the knowledge possessed of them, therefore—

In a perfectly consistent classification all objects will be so grouped and named as to exhibit their true nature, rank, and relations, and thus to approach to, or recede from each other in exact proportion to the importance and number of their affinities and differences.

This law is fundamental, and obviously covers all the requisites of correct arrangement; but, for practical purposes, we require some more special rules of guidance, and these, to be accurate, must not only be in perfect harmony with this fundamental law, but must, virtually, be direct deductions from it; otherwise they could not be guides and criteria of correct classification. Among such special rules the following may be enumerated:—

I. *All classification, in proportion to its completeness, must have reference to the totality of attributes in the objects to be classed; otherwise*

¹ In 1776; Geoffroy, *Hist. nat. gén.*, t. ii., p. 45.

incongruities might be approximated and affinities separated, in a manner that would interfere with the true relations of things.

II. *In every consistent classification the greater divisions will be determined by the more important attributes and relations of the objects to be classed, and the subordinate divisions by subordinate attributes and relations, in a regular scale of recession and subdivision; otherwise things could not approach to and recede from each other in proportion to the importance and number of their affinities and differences.*

III. *Each group, in consistent classification, will have one or more attributes peculiar to itself, or in a degree or manner peculiar to itself; otherwise there would be no object in constituting it a distinct group.*

IV. *No attributes or relations but such as are permanent in their character, or regular in their recurrence, can enter into the plan of a consistent classification; otherwise a classification would have no stability in its consistency, but, while consistent one moment, might be incongruous in the next, which would be a contradiction.*

V. *Every consistent Nomenclature will present a true picture of the grouping to which it refers; so that its terms will be comprehensive or restrictive in exact proportion to the comprehensiveness or restrictiveness of the divisions which they represent.*

VI. *Consequently no term or arrangement can be accurate which necessarily ignores or rejects any important attribute of the thing grouped, or which necessarily suggests attributes inconsistent with its nature; since this would be to present a false instead of a true picture of things, and thus defeat the very object aimed at.*

VII. *Finally, no term in a consistent nomenclature can have more than one value; otherwise it would necessitate qualifying phrases, which would be a defect in convenience, or tend to ambiguity, which would be a defect in accuracy; and therefore a term once affixed to a division of a given rank and kind can never, in the same classification, be consistently applied to any division of a higher or lower rank or of a different kind.*

These laws are very simple and obvious truths: mere truisms, if the reader pleases; but it is not the less useful or necessary to formulate such rules, neither are they less trite than the fundamental laws of geometry. No doubt the general arrangements of modern naturalists, and especially of zoologists, will be found in strict accordance with these rules: the simple instinct of a scientific man will usually guide him aright in forming and limiting his groups; but the controversies which exist amongst us clearly prove that it will not always do so; and hence the advantage, and often the absolute necessity, of carefully determining

the laws to which our adjustments should conform ; for, if reasoning is to be sure, systematic, and authoritative, if science is to have criteria of accuracy, guidance in obscurity, help in difficulty, it must discover and methodically formulate the principles which ought to regulate its labours, and keep those principles perpetually in view. By such means only can rashness be duly controlled, incompetence and superficiality kept in their true places, and correct thought receive the attention which it merits; by such means only has geometry attained its supremacy in accuracy and authority, and by such means only need we hope to overcome the enormous difficulties involved in the pursuit of natural arrangement. Such laws are, to the reasoner, what the compass is to the mariner, the rule and plummet to the mechanist; he who neglects them has no security, and he who is above using them will have to pay the penalty of his presumption in numerous and grave errors.

In applying the foregoing laws to the case before us, we see at once the necessity of making a distinction between the animal and vegetable kingdoms. We may be quite unable to determine whether certain individualities or minor groups belong to the one kingdom or the other, but nothing can be plainer than the distinctness of the aggregate masses; and the higher we advance in each kingdom the broader becomes the separation.

In the vegetable kingdom we see an aggregate unequivocally natural, definite, self-consistent, and, so to speak, homogeneous, until we come down to its lowest limits, where our knowledge becomes imperfect; and a question may arise, and, in fact, has arisen, whether or not one of its apparent groups, the *Fungi*, may not belong to some other category. Everywhere else we see a common nature, wonderfully diversified in detail, but everywhere congruous. We see a manifest organic gradation and hierarchy of ranks, but nothing either inconsistently supreme or inconsistently low.

This kingdom presents us with a twofold division strikingly analogous to that of the world itself. We have a higher section, variously termed Phanerogamic, Cotyledonous or Vascular, and distinguished by a higher degree of organic specialization, by the presence of true flowers, leaves, stems, &c., and a lower, or Cryptogamic, Acotyledonous, or Cellular section, in which there is no proper inflorescence, nor any strict distinction between leaf, branch, root, &c. Each of these sections is subdivisible into another order of groups curiously analogous to the division of the organic and inorganic empires into kingdoms, and each of these secondary groups presents a distinct plan of structure

which clearly separates it from neighbouring groups. In the Phanerogamic, or section of Flowering plants, there are two such groups, and only two—the Monocotyledons and the Dicotyledons; and these are so unequivocally distinct that all who have adopted the natural system are agreed in recognising them. In the Cryptogamic or Flowerless section we have five distinct groups, if we include the Fungi—otherwise, only four: *Ferns*, and their allies, *Mosses*, *Algae*, and *Lichens*; and, as these divisions are precisely analogous to the primary groups of the animal kingdom, both ought to bear the same divisional names. If, in the one case, we adopt the Cuvierian term *branches*, we ought to use it also in the other, and thus say that the vegetable kingdom is divided into two sub-kingdoms, or, to carry out the analogy, *Provinces*—the Phanerogamic and Cryptogamic, each of which is subdivided into branches, or, better still, *Departments*—Monocotyledons, Dicotyledons, &c., &c. Where nature is uniform, our terminology should be so likewise. We shall thus aid instead of burdening the memory, as well as bring into light important relations which otherwise might remain altogether unperceived, or, if perceived, unavailable in practice.

The animal kingdom has also its twofold division, universally recognised as Vertebrate and Invertebrate. In the one we have a much higher order of organic specialization. In the other, there is a generalization and amalgamation of functions progressively increasing downwards, until we reach animals so simple that all the vital processes are performed by a single and seemingly homogeneous tissue. Here, as in the vegetable kingdom, we have a striking analogy to the organic and inorganic sections or empires of the sphere; for, compared with the structural definiteness and specialization of a bird or a beast, the highest articulate animal is organically vague, and this vagueness is visible in every portion of the body, and pre-eminently so in the nervous system, and especially in its higher portion, the brain. Just as the cryptogamic plants have, in obscure forms, all that is absolutely essential to fructification, without having anything like a flower or anything like truly specialized pistils or stamens in the higher senses of these terms, so the invertebrate animals have no proper brain, although the higher groups of them have cerebral matter which performs the fundamental functions of a regulative organ, while the lower must have nervous matter in one form or other, even in cases in which, as yet, it has been impossible to trace it.

In the animal kingdom, as compared with the vegetable, we have some striking contrasts. The higher province or sub-kingdom contains but a single type of structure—the Vertebrate; while the vegetable

has two—Monocotyledons and Dicotyledons. In the Invertebrate province we have but three instead of four types that are beyond dispute— the Articulate, the Molluscan, and the Radiate; for, as with the Fungi in the vegetable kingdom, there is no common agreement among naturalists as to the true value in classification of those minute beings termed Infusoriæ, Polygastrica, Protozoa, &c. In the animal kingdom, then, we have certainly *four*, and possibly *five* distinct branches, *departments*, or types of structure; while in the vegetable kingdom we have certainly *six*, and possibly *seven* such divisions. Is this the normal number in each case, or are we to suppose that the vegetable kingdom is more advanced in development—older, in fact, than the animal, and hence that it has, in each of its sections, one group more than the animal kingdom, the Ferns in the lower section, the Monocotyledons in the higher? This is a question which cannot here be discussed; but it may not be without utility to state it.

I have spoken of the relative homogeneity and self-consistency which everywhere pervade the vegetable kingdom, if we except its possibly lowest group; and the like consistency is equally apparent in the animate world, with the additional reservation of its highest group—Man. Omitting this one great anomaly, all is harmonious. There are clearly marked ranks, but all ranks are commensurate. In essential matters the very highest animal does little more than the lowest. It feeds itself, provides for its safety, to a greater or less extent, produces offspring, and gives more or less attention to the welfare of that offspring. In one form or other, in a manner more or less effectual, every animate group below man discharges these duties and these only. Nor are the phenomena exhibited in their discharge at all incommensurate. In the higher animals the wants are more varied and definite, and the means of supply equally so; but we nowhere see any structural or functional attribute which, either in kind or degree, would make it incongruous for us to connect its possessor with other animal groups. There is no beast so high that we can for a moment think of separating him, either on mental or physical grounds, from the vertebrate group, still less from the animal kingdom; nor is there one which will not find himself inferior in some important respects to many beings of far lower type. Neither the sage elephant, nor the lordly lion, nor the clever ape can compare for a moment in constructive ability with the tiny humming-bird; and yet constructiveness is a high gift, quite as high, to say the least, as mimicry. Or what order or genus of beast can show any phenomena at all comparable to the social economy of the bee or the ant, animals belonging to the lower section of the kingdom, animals

which do not even possess a specialized brain? In fact, we might say that there is a common mass of power assigned to the kingdom, and distributed to the several groups with tolerable, if not absolute fairness. Where more has been given of one kind, less has been granted of another. Nutrition and generation dominate in the lower groups, mental power in the higher. One type emphasizes the skin, another muscle, another nerve; one the eye, another the ear, another smell, another taste; and so on. We have an organised commonwealth, a specialized group, but nowhere any disproportionate aggregate superiority, a type that has any claim whatever to be separated from the kingdom. On this point all are agreed; no naturalist has ever raised a dissentient voice, or proposed the exclusion from the animal kingdom of any creature, from the highest of beasts to the lowest of unequivocal mollusks. All doubts have had reference to the more obscure types at the base of the scale. But the moment we turn to man all this harmony, consistency, unanimity, and analogy is broken. We see, indeed, a type but slightly altered in appreciable appearances, but we also see functions, deeds, wholly new, and absolutely incommensurate, in any *regnal* sense, with anything which has previously prevailed. We no longer see a being contented with eating, drinking, sleeping, providing for its individual comfort and that of its progeny: there steps out before us a ruler, a thinker, an inquirer. For the first time in the history of the planet, there stands upon the earth a being really conscious and awake. Every other living thing slumbers in primal unconsciousness of all but its own little wants and interests, and even of these has no true knowledge or cares to have. For man alone the universe has a meaning. In a cosmic sense, he stands the first and sole percipient of its wonders, the only terrestrial being who can have one clear thought, or cares to have of the great scene in which his lot is cast.

The animal perceives, feels, remembers, draws conclusions: he therefore reasons; but this reasoning is fractional, momentary, a series of impressions over which the mind has no control. It is rather the reasoning of a sleeper than of a truly conscious being. But man marshals his thoughts in order, deliberates, weighs, compares, distinguishes between thought and thought, between the thought and its object, the thought and the thinker. He thinks and reasons with full consciousness, and he alone does so. The animal has no consciousness but that involved in the simple act of thinking: man is conscious in the sense of clear deliberate introspection.

The animal lives in the actual moment. He has no future and he

has no past. If he lays up provisions, it is not from foresight or deliberation, but from a direct impulse to accumulate. When the spring comes the bird feels an irresistible tendency to build, just as it feels an irresistible attraction towards its mate. Both are direct impulses, neither a prudential act. And thus, too, the canary which pines for the loss of its companion, and the dog which lies down to die on its master's grave, are not influenced by a flood of dreary retrospections, but by the simple and ever-present feeling that something which they had learned to love till it had become a part of their existence is kept from them, moment after moment, and therefore they wait for its coming, hour by hour, until the powers of life are overtaxed and they perish. Not so, however, is it with man. The present is almost the least of his concerns. His thoughts are habitually in the future or the past. He seeks to anticipate the whole course of his existence and to provide for it. Nor does even this satisfy him. He must provide for others also, for every one. The sphere of his sympathies embraces the entire earth; he feels for every sentient thing, even to the extent of sometimes lifting up his voice against Nature herself, and asking why there should be sorrow or suffering at all.

In a word, man alone is *cosmically* percipient, conscious, reflective, regulative. He alone is moral, reverential, admiring, inquiring. Even in his lowest and most degraded forms he possesses these attributes. They intensify as he rises in scale, until he ultimately stands forth a terrestrial providence, a virtual god, in comparison with every other animate thing. To leave such a being in the animal kingdom is clearly to destroy the entire consistency of the group, and violate one of the most important conditions of a natural arrangement.

But if it be so great an incongruity to leave man in the animal kingdom, what must it not be to leave him in the class of beasts! We surely do not diminish the inconsistency by discarding the objectionable term "beast" and substituting the pleasanter and more endearing word "mammal." Genuine science looks solely to realities, it only values words in proportion as they represent these. The word "beast" is only objectionable from the fact that it represents a class of associations common to all beasts without exception, but entirely inapplicable to man, while it excludes absolutely a still more important range of associations peculiar to man, and totally inapplicable to any beast whatever. But this is to group utter incongruities, and to violate every principle of natural arrangement.

Were the word "beast" a term of very definite nature, having reference to some single peculiarity or set of peculiarities, like the words "mam-

mal," "reptile," "articulate," or "radiate," then it might be necessary, as a matter of convenience, to stretch or limit its technical meaning so as to embrace or exclude certain types. But such is not the case. The word is perfectly elastic, entirely indefinite, and fit to cover any type that can present the general attributes of the group. If, then, such an elastic term would be an absurd misnomer in the case of man, this can only be because man differs too widely from the group to bear a name which so faithfully represents its general character. Even then, were we to hesitate about the removal of man from the animal kingdom, nothing can justify his retention in the class Mammalia. No doubt he is a mammal, in the sense of having breasts and suckling his young, and in various other senses; but, if the possession of a single common attribute or set of attributes were sufficient to justify the conjunction of beings otherwise incongruous, we might invent a class or branch of *Digitalia* which should include man, beasts, birds, and most reptiles, while excluding fish, serpents, and whales, and leaving horses, pigs, ruminants, and seals a tilting-ground for the prowess and ingenuity of future naturalists. But, if the object of really scientific classification be to make groups which shall be *wholly* and not merely partially congruous—groups which shall represent the aggregate nature of the things conjoined, emphasizing their higher attributes without ignoring subordinate ones—if this be the object of scientific arrangement, as most assuredly it is, then it is impossible for man to be included in the same subordinate group as the beast—so placed as only to be removed from a cat, an ox, an elephant, a rabbit, or a kangaroo by the same line of demarcation which separates these animals from each other—the line of an *order*.

Thus the matter stands while we view natural arrangement in its least stringent form. If we look upon it in the definite sense in which it ought to be taken in natural history, if we remember that the affinities which nature presents are neither vague nor accidental, but strictly systematic and precise, the result of laws of development which would speedily bring back chaos if they were not measured and adjusted with supreme wisdom—if we regard the matter in this light, we may soon satisfy ourselves that the group Mammalia, while we leave man in it, is in utter discord with all the analogies presented by the other groups of the animal or vegetable kingdom, whether natural or unnatural.

(To be continued.)

NOTES

ON THE SOUTH SLAVONIC COUNTRIES IN AUSTRIA AND TURKEY IN EUROPE.¹

THE nature and object of this pamphlet will be best expressed in the opening paragraph of the Editor's Preface.

"During a tour on the Danube last year I made the acquaintance of two English ladies who had spent many months in learning the language of Serbia, and in collecting information of the most valuable kind concerning that country and the neighbouring Slavonic provinces of Turkey and Austria. On my return to England, these ladies told me that they were preparing an account of their travels. They also showed me a paper containing notes such as would interest persons disposed to a practical study of the subject, besides answering several questions now afloat as to the nationality and disposition of the Slavonic peoples south of the Danube. They have done me the honour to ask me to edit this paper, adding to it some political remarks of my own; a request to which I gladly accede, in the hope that those interested in the condition of Turkey and her dependencies may find in the following pages material that will be of use in forming a just appreciation of the state of the Danubian provinces of the Ottoman Empire, and in obtaining a clear view of British policy in South-eastern Europe."

These "Notes"—which, by the way, form a very compact, consistent, and most interesting paper—are the result of journeys made in the years 1861-62-63-64; and we run no risk in strongly recommending them to the notice, not only of the politician and geographer, but equally, and perhaps especially, to that of the ethnologist; for, though the expressly ethnological details which they furnish are but few and brief, yet the incidental information is more considerable, and it receives an additional value from the fact of its relating to countries so little known and yet so deserving of being better known.

It would be easy to expatiate on a point like this, on the important section of Europe to which these countries belong, on the vagueness that overshadows its ethnic subdivisions, and on the causes, historic and physical, on which this vagueness may be supposed to depend; but our space forbids

¹ Notes on the South Slavonic Countries in Austria and Turkey in Europe, containing Historical and Political Information, added to the substance of a Paper read at the Meeting of the British Association at Bath, 1864. Edited, with a Preface, by HUMPHREY SANDWICH, C.B., D.C.L., author of "The Siege of Kars," &c. Blackwood and Sons, 1865.

us to enter on such a tempting theme, and we must be contented with barely calling attention to it by a few hasty remarks.

When we speak of Western Europe we can at once divide and subdivide it by sharp, broad lines. Its Teutonic, and what might be termed, in a wide acceptation, its Celtic sections, are unmistakeably distinct, and the latter especially divides, nationally, with an equal, if not even a greater sharpness. Greece, Italy, Spain, France, Britain, Ireland, if they have not the breadth of line, have all the ethnic definiteness presented even by the great continents themselves; nor does history or tradition point to a time when this distinctness did not exist. Even geographically these countries are distinct; while, ethnologically, no one can confound the striking individuality of their peoples, taken as aggregates. There are external differences, but they are comparatively nothing: it is in the mind, in the genius of the several types, that the individuality is mainly discoverable. The mind grows after the grosser portions of the physical structure have *comparatively* stopped; and what is true of the individual is true equally of races. In a gallery of Greek or Roman sculpture, where portraiture has been aimed at, we see our very selves of this nineteenth century; and yet how different the minds of the two eras, making all allowance for education, knowledge, &c., &c. ! The nationality of a modern Frenchman and an Italian, or of an Irishman and an Englishman, is often all but indistinguishable, physiognomically, and yet see these indeterminate beings in action, trace their history, probe their hearts and their minds, and at every turn their nationality comes forth clear, unmistakeable, perhaps even with startling distinctness.

This is one of the great points which the ethnologist has carefully to study, and which hitherto he has too much neglected. He knows it all very well "out of doors," but he has no "official knowledge" of the fact. Indeed, as an ethnologist, he often denies it point-blank; but we may be sure that a science which does not square with outside experience is a science which is very apt to require mending, and which, at all events, ought to be looked sharply after.

But when, after this glance at these Atlantic and Mediterranean races; when, after considering what Greece and Italy were, each and together, in the days of their glory, what France was in medieval times and is now, what Spain was in her brief day, what Britain *is*; to say nothing of those mysterious, and assuredly most mistaken ages, whose only mark is the rude but gigantic cromlech, and mound and stone circle—when we look from these broad individualities to the east, and meet the great Slavonic family, how wonderful is the contrast! A European people, and from that fact alone a people of high destiny and importance, yet a vague, indeter-

minate people, here and there distinct provincially, yet rarely so nationally, a people without a past, historically or monumentally, and with a present and a future singularly indefinite. At the dawn of tradition there were Scythians, in Europe as in Asia: there are Scythians still, *et voilà tout*. Always a great power, neither to be despised nor ignored, but always a great vagueness. Whence these wonderful contrasts; contrasts, too, that strangely repeat themselves in Western and Eastern Asia, though with some curious and important exceptions? Do they speak of relative infancy? are they geographical? or do they depend on inherent peculiarities of race? and, if the latter, what is their import, and what their promise? Whatever be the answer, we have here to deal with an important family of man; a family which, ere now, has brought night upon Europe, and may do so again. All these considerations make this family an object of serious interest both to the politician and the ethnologist; and the work before us brings us into contact with one of its least-known portions, and gives as large a mass of varied information as can well be compressed in the space of some sixty or seventy pages. The work, too, is accompanied with two maps—one of the Principality of Serbia, and another, and larger one, of the South Slavonic countries generally. This map is ethnographically coloured, and therefore has a special interest.

The limits of the South Slavonic countries are thus determined:—

“Bounded on the north by the rivers Danube and Drave; on the west by the Adriatic; on the east by the Black Sea; and on the south by the frontiers of ancient Greece,—lies a region not one-third smaller than France: its inhabitants, numbering from ten to twelve millions, form the southern division of the Slavonic race. Throughout the greater part of the country this population is homogeneous; but to the south and east it dwells interspersed with about half a million Albanians, and some hundred thousands of Turks, Tartars, Greeks, and Tzinzars.

“Classed according to their dialects of one language, the Southern Slavs may be divided into two nearly equal parts. The eastern call themselves Bulgarians, the western Croato-Serbs. Classed according to their creeds (we give the result of such imperfect statistics as exist), from two to three millions are Romanists, seven hundred and eighty thousand Mussulmans, and all the rest belong to the Slavonic branch of the Eastern Church.

“Their political divisions are various. The Bulgarians live directly subject to Mohammedan officials, and their land is meted out in Turkish pashaliks. Of the Serbo-Croats, some are included in the Austrian, some in the Ottoman empire, and two small states govern themselves. Thus, we have the Dalmatians, Slavonians, and Croats proper, forming what is

called a *triune kingdom*, whose king is the Emperor of Austria; we have the Bosniacs and Herzegovinians, whose countries are Turkish provinces; the Serbs of the autonomous principality of Serbia; the Serbs of independent Montenegro" p. 25.

After a brief sketch of the history of Bulgaria, and of its sufferings under Turkish rule, we are presented with the following remarks on the people themselves:—

"Under circumstances so disadvantageous, it is surprising how far the Bulgarian has been preserved from the vices of a conquered population in the East. His village is withdrawn from view of the high-road, to elude, if possible, the intrusion of Turkish violence. Even in the towns, his house is of insignificant exterior, for fear of attracting Turkish cupidity; but within his humble dwelling all is order and cleanliness: his field and his flower-garden are carefully tended, and his modest, virtuous helpmate is as praiseworthy for her tidiness and thrift as he is himself for honesty and diligence. The Bulgarian is of dark complexion, large and strong limbed, but with a *down-look* and a slouch; the women are comely, with fine teeth and hair. In manner, the Bulgarian is reserved and shrinking, and to those whom he does not trust he opposes a shield of dogged stupidity; but persons who have instructed him, either in his own country or abroad, bear witness that his understanding is excellent, and that he is eager and apt to learn. A great number of young Bulgarians are now studying, at their own cost, in Paris, Prague, St. Petersburg, and Constantinople. On their return home many will become schoolmasters; and thus it is hoped that education may make its way in spite of the jealousy of the Turkish Government and Greek priesthood, which does not suffer a college, or even a printing-press, to be started in any Bulgarian town" p. 29.

The people of the Herzegovia, we are told, "are considered the handsomest men among the Southern Slavs, and their dialect is the most beautiful in the language: as such, it has been selected for the modern translation of the New Testament, and for the published version of the national songs" p. 34.

The Serbo-Croats are thus contrasted with the Bulgarian section of the country:—

"As to disposition, the Serbo-Croat shares with the Bulgarian his sentiments of nationality and tenacity of purpose; but, unlike the Bulgarian, he is warlike, and, whether Christian or Mohammedan, Austrian borderer or janissary, Bosnian Bey or Montenegrine, he has secured respect for his stubborn valour. The Christian tribes are still more honourably distinguished by their deference to the defenceless,—a woman is to them inviolable, and the stranger under her protection safe. The gifts of eloquence

and improvisatory poetry are generally diffused among the Serbs. Their struggle for national existence is recorded in a series of ballads sung from hearth to hearth down through five centuries to the present day. Hanging to the door of the wayside inn, we often found a small guitar (Slav. *gusla*), and, in absence of the professional blind singer, it was handed to the eldest man present, or to him most distinguished for warlike deeds.

"But those qualities which render the Serbo-Croat more interesting than the Bulgarian are balanced by serious practical defects. He is averse to labour, impatient, careless, and, though quick at learning, is troublesome to teach. Especially he differs from the Bulgarian in this, that *nothing can be got out of him by oppression*. The Croatian peasant was, the Dalmatian Morlack and the Bosnian rayah still are, the laziest, sulkiest, most intractable, most implacable of mortals. Such merchants as succeed in Bosnia come *not* of the crushed Christians in that province, but from the insurgent districts in Herzegovina. In free Montenegro theft is all but unknown, and in Serbia every man wears arms without danger to the public peace; but in Dalmatia not all that Austrian police and soldiers can do will keep down brigandage or root out the Vendetta.

"We have alluded to the fact that traces of old communal organization yet survive among the Serbs. It will be a sad mistake if, in haste to be civilized, they should blot these out, and squeeze their sturdy little principality into the strait-waistcoat of a bureaucracy. No doubt, however, some of the good old ways are somewhat embarrassing to a modern Administration. For instance, up to the present hour the Serbian yeoman has successfully resisted the intrusion of the tax-gatherer; his poll-tax, nominally one pound per householder, being collected and apportioned by the elders of each Commune. Lately the Prince of Serbia declared the revenue thus raised to be unequal to the expenses of the State, and proposed the substitution of a regular tax on property. In the National Assembly held the other day, he announces that this measure has as yet proved impracticable. It is not to pay more that the people refuse, but they choose to raise it in their own way" p. 39.

For the political and geographical details given in these pages, as well as for the incidental light thrown upon ethnology, we must refer the reader to the work itself; nor would it be fair, while necessarily concentrating our chief attention on the body of the work, to forget the great additional interest which has been given to it by the able Preface of the editor, who has mainly directed his attention to the political bearings of the subject.

We need only remark, in conclusion, that we look forward with much pleasure to the work of which these "Notes" are the foreshadowing. The

judgment, ability, and spirit which mark these pages throughout can scarcely fail to produce a highly interesting result when brought to bear on the whole of the materials collected by the fair authoresses. We trust ethnology will come in for its full share of attention, and that the female instinct, which so often distances man's scientific ploddings and gropings, will, in this case also, maintain its wonted supremacy.

THE ETHNOLOGICAL JOURNAL.

THE general scope and character to be looked for in an Ethnological Journal are now, fortunately, so well understood, that, in introducing the present work to the public, we need scarcely do more than paraphrase the simple statements of our Prospectus. Ethnology is now taking rank not only among important, but even among popular sciences; and, so far is this from being a mere phase of fashion, to be hereafter displaced by some new fancy, that it is simply the result of an increased knowledge of the subject, and a result which must intensify in proportion as that knowledge increases. For Ethnology involves problems of the highest and deepest import; touches human interest, and the best and dearest of those interests, at so many points, that nothing but our still imperfect knowledge of its nature and resources prevents it from being universally and fully appreciated. Ethnology, in a word, is the science of man; the knowledge of all that differences him from other living things—the knowledge of all that differences him from himself, man from man, brother from brother, countryman from countryman, nation from nation, continent from continent. These differences, great and small, internal and external, obvious and subtle, are not matters which merely concern the amusements of learned leisure, or the gratification of scientific curiosity. They are intensely practical—perhaps the most practical of all our concerns, and equally practical whether we are ignorant or wise; fatally so in the one case, beneficently in the other. We are workers; our tools are men, our materials are men, and our knowledge of both is extremely limited. Must we not, then, frequently bungle and blunder, often fatally, often terrifically? Ethnology seeks to save us from these evils, and to offer us advantages now wholly beyond our reach. Who, then, can doubt its pre-eminent and inherent practicability, or the absolute universality of its interest?

True, Ethnology is in a very infantile condition; it gropes in darkness in a thousand directions; it often mingles truths and errors in a confusion

which few can unravel ; but this is the inevitability of all young life, and it will grow out of this as other sciences have grown and are growing, and the rapidity of this growth will be exactly proportionate to the interest taken in the subject—to the time and attention bestowed on its development. Already it has spread light, and removed or shaken errors in many directions, and, indeed, has gathered up a strength of which full advantage has not yet been taken. But events are rapidly progressing in its favour, and we see no reason why it should not, ere long, rise up before us, not, indeed, a complete or even an advanced science, but, at least, one placed on an organized and consistent basis, with laws which all must recognise, with facts which have passed out of the region of dispute. To contribute, in every possible way, to a result so desirable will be one of the leading aims of the present work.

The scope of Ethnology is so vast and important that a large amount of its work has already been done for it, irrespectively of its own claims, by labourers specially interested in the different sections of that work. Historians, antiquarians, philologists, mental students, travellers, and especially the investigators of anatomical, physiological, and biological science, offer to us at once a rich inheritance, of which it will be purely our own fault if we do not profit. But this inheritance must be applied, and it specially belongs to the Ethnologist to make this application. This is the focus to which these various lights must converge, and it is his place to point out to these various labourers the modes in which they can aid the science of man by special research. Hence an Ethnological Journal ought eagerly to welcome from all these different spheres of thought everything calculated to throw additional light on its own great central world. And hence no scientific periodical could have higher interest for the enlightened public than an Ethnological Journal, ably conducted and energetically supported by scientific men ; but, then, all that depends.— However, *we* shall do all that lies in *our* power to meet the requirements of the occasion ; and we indulge the hope that scientific men will gradually turn their thoughts towards us, in proportion as they become aware of our existence and satisfied with the character of our labours.

We can, however, announce at once that this work will be conducted on the broadest and most liberal basis. Not only will it be open to all communications of merit having any direct bearing on its subject, but it will equally permit the freest criticism of its own proceedings and opinions. Indeed, in so far as such a thing is practical or proper, it will endeavour not to have any special opinions at all, as a Journal. The management will merely claim the privilege of the same freedom of utterance which it offers to every contributor.

That there is scope for a work of this kind must be obvious to all who look to what is taking place around us in connection with this subject; for, however numerous the channels in which it is now possible to lay an Ethnological paper before the public, there is already but one journal in this country expressly devoted to the science, viz., the "Anthropological Review," and there are obvious advantages in having an additional and monthly work. We have not the least doubt that there is abundant room for both, and we think it will be entirely their own fault if the success of each does not beneficially react upon the other.

We need only add that Criticism will constitute an important feature in the work; that the various theories of leading writers will be carefully and candidly examined; and that, as far as may be practicable, all new publications of importance will be briefly noticed or formally reviewed. We may also mention that, as soon as our arrangements are complete, we shall be enabled to offer regular Reports of the Proceedings and Discussions of the Ethnological Society of London, and, we trust, too, to receive those of the sister Society, the Anthropological.

THE ETHNOLOGICAL SOCIETY.

At the meeting of the 7th instant, John Crawford, Esq., President, in the chair, Professor Busk laid on the table two skulls of Andaman Islanders, and two others recently extracted from a cave at Windmill Hill, Gibraltar. The former elicited remarks from the Professor, the President, Mr. Carter Blake, Mr. Manockjee Cursetjee of Bombay, and Dr. Donovan. With the Gibraltar skulls were found flint knives, a ground stone celt of greenstone, but no metal. The Professor believed them to belong to a race which once extended over the whole Iberian peninsula, but had formed no decided opinion as to whether or not they ought to be referred to the Basque type. Mr. Blake produced a Basque skull, and pointed out its strong resemblance to these ancient crania.

The paper of the evening was communicated by Professor Nilson, the celebrated Scandinavian antiquary, its subject being an attempt to explain the great monument of *Stonehenge*. This monument the Professor referred to the bronze era of archæology, and believed that he had succeeded in proving it a temple of Phœnician origin, devoted to the worship of the god Baal. This opinion, however, was not shared by those who addressed the meeting. Mr. Wright learnedly commented on the classical bearings of the evidence, and not only entirely rejected the Phœnician theory, but

regarded the monument as much more recent than it has been generally supposed. Mr. Crawford, while maintaining the great antiquity of Stonehenge, expressed his belief that the Phœnicians had never been in England at all. Mr. Burke also regarded Stonehenge as of remote and pre-historic antiquity, and believed that the stones, though rudely squared, and carefully fitted in the case of the imposts, were still untouched by metal tools, an opinion from which Professor Busk dissented, but which Mr. Crawford concurred in. Mr. Mackie was glad to hear Stonehenge referred to the stone period by the President, as he had long regarded the unhewn stone circles, and such like monuments, as belonging to the first portion of that early human era. In the case of Stonehenge he considered it certain that the blocks had been squared artificially, as the stones are of Tertiary age, and are naturally rounded concretions.

At the meeting of the 27th the paper read was "A Report on the Indian Tribes of the North-west Coast of America in the Vicinity of the 49th Parallel of North Latitude, by Captain Wilson." It was a long and very interesting communication, and accompanied by a number of photographs of natives, and various curiosities.

At the next meeting of the Society, which will close the session, and be held on the 4th of July, a paper will be read by Dr. Donovan on "Craniology and Phrenology in relation to Ethnology."

Among the recent contributions to ethnology, we have to note two important works—the "Researches into the History of Mankind" of Mr. Edward Burnet Tyler, and, still more recently, Sir John Lubbock's "Pre-historic Times"—a review of which will appear in our next: and, in the "Fortnightly Review" of June 15th, Professor Huxley has a paper on the "Methods and Results of Ethnology" well worthy of a careful perusal.

Whether it be a sign of prejudice on the one side, or of credulity on the other, we will not undertake to say, but it would seem that Phrenology, though still so rigidly prescribed by the majority of the learned, has not lost its hold on the public mind, for we understand that it is proposed to include it among the attractions of the Polytechnic Institution, and that Dr. Donovan is to be its expounder.

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AUGUST, 1865.

THE PLACE OF MAN IN THE ANIMATE SCALE.

§ II. GENERAL LAWS OF ARRANGEMENT.

(Continued from page 41.)

IN the class of Birds there is everywhere a common nature, a general level, abundant minor diversities and specializations, but no creature towering supreme above the rest, either in body or mind, in structure or in function, nothing having the faintest shadow of resemblance to the contrast between man and beast. Just so among Reptiles and among Fish; so also in the Invertebrate province. The Arachnidæ, the Insecta, the Crustacea, and the Annulata all show the same consistency. Nowhere do we see the shadow of a supreme. So with the various groups of the molluscan, radiate, and infusorial types; so with every group in the vegetable kingdom: nothing bearing the faintest analogy to the case of man and the beast is anywhere discoverable.

These are a few, and only a few, of the objections that may be urged against the place assigned to man in the animate scale since the days of Linnæus and Buffon; before, however, advancing further, we must consider the grounds on which this adjustment has been based.

The great, indeed the only reason which could suggest the idea of placing man in the class of beasts is the seeming identity of structure between him and the beast. If this identity be real and not simply apparent, if it applies to the essentials of animate structure and not simply to external and subordinate departments, then assuredly the naturalist is right—perfectly justified in what he has done; but then also Nature is for once wrong, signally, glaringly wrong, not only in discord with her own arrangements in other cases, but wrong fundamentally. If structures that differ but slightly can produce results that differ enormously, that differ not only in degree but in kind

also, then, assuredly, an effect is no index of its cause, a cause no assurance of the character of its effect, and the eternal laws of being may be true and false at one and the same time, and in one and the same sense.

This is the logical necessity of the argument; but, even were it not so, were it merely the seeming necessity, it is clear that we have a right to demand from the naturalist the most substantial reasons for opinions which even appear to place us in a predicament of this kind. We are compelled by a necessity of our nature to believe that every phenomenon is in exact relation with its cause. Where we see a variation in effect we irresistibly infer a corresponding variation in the cause; and we also carefully discriminate between variation and variation. One series we attribute to modifications in structure, and another to modifications in the forces acting on structure. It would be in vain, for instance, to tell us that two different patterns were produced by looms exactly alike, and that the cause of the difference lay solely in the nature of the fuel, and the mode of conveying the steam to the piston. In matters of this kind we thoroughly understand that force—that external conditions altogether are one thing, structure quite another, and that, while we are prepared to expect from the one variations in time and intensity, we look to the other exclusively for variations in kind.

Now it is these conclusions, not derived from experience, though always confirmed by experience, but resulting from the primary constitution of the mind, and clear and forcible in proportion to the rank and training of the mind in the portion of it set apart for these functions—it is these conclusions which are violated, or seem to be violated, in the case under consideration; and therefore we are justified in demanding from the naturalist a careful reconsideration of this question, and in continuing to demand it, until, at last, the discord between theory and practice, between fact and law, shall be wholly removed, by the abandonment of a false position, or by the clear demonstration that the discord is apparent only.

It would, however, be very unfair to the naturalist were we not to admit that from his special point of view the argument in his favour seems overwhelmingly strong; but it would be most unreasonable on his part to insist on limiting the inquiry to any one point of view when such weighty reasons are brought against his conclusions from other quarters. On the contrary, the clear duty of a reasoner, in a case like this, is to suspect the accuracy of his rules, or of the applications made of them, and not to rest satisfied until he has actually

demonstrated the truth of his conclusions, or detected the latent error in those opposed to them. Many doubtless believe that they have done all this, but assuredly this belief cannot be substantiated.

§ III. ERRORS OF NATURALISTS IN THEIR APPLICATION TO MAN OF
THE ORDINARY RULES OF SCIENTIFIC CLASSIFICATION.

That man is an animal, is a position which seems at first sight too obvious to require proof, or to admit of doubt. No one, indeed, can question that man meets, in the fullest extent, the definition of an animal, as far as all positive attributes are concerned; for there is no structure or function belonging to any animal which he does not possess, either in the same or in some superior condition. Why then not regard him as an animal? the naturalist will say. The answer, however, is simple and decisive. The definition is incomplete; it omits an essential condition. Every natural group is limited—is defined, in a twofold sense, positively and negatively—by that which it has and by that which it has not. It is divided from the groups below it by positive attributes, from those above it by negations; and the rank of the division is high or low in proportion to the importance of these positives and negatives.

It is precisely on these terms that the animal has been separated from the plant. It possesses every organic attribute belonging to the plant, either in the same degree and manner, or in superior ones; but it is not therefore viewed as a plant, but divided off from the plant because it possesses other important attributes which no plant possesses.

On precisely the same terms is the plant separated from the mineral, the organic formations from the inorganic, the phanerogamic vegetables from the cryptogamic, the vertebrate from the invertebrate animals. There may be other considerations involved in the separation, but these particular ones are always involved, and sometimes exclusively so. It clearly then does not follow that man is technically an animal because he possesses all the positive attributes of an animal. To be really an animal he must also have the negative limitations of an animal. In other words, he must be, in no important respect, superior to the animal; he must possess no attributes sufficiently exalted to require his removal into another category. Do naturalists believe, or have they ever believed, that this is the case, that man possesses no attributes which greatly difference him from the animal? Assuredly not. They have always recognised his transcendent superiority in certain qualities, and those qualities they have recognised as of trans-

cendently high order. Here, then, at the very commencement of their labours, they have overlooked one of the fundamental laws of arrangement, one even of their own laws—the very law which they had practically in view when separating the animal from the plant and the plant from the mineral.

The naturalist does not think of denying the vast intellectual superiority of man; but, as that superiority does not express itself in great visible structural differences, he does not think himself justified in recognising it in classification, and therefore does not recognise it. But in this refusal he tacitly adopts a principle which he would not venture to formulate expressly, and accept as a rule of guidance in other cases. No naturalist would venture to assert that structural differences ought to be the sole practical criteria of classification; that when they are not perceptible we have no right to discriminate; and that when perceptible we can only discriminate in proportion to their apparent magnitude. Such a rule as this could not be carried out, and is not carried out with any degree of consistency. If complied with in one case, it is evaded in another, or contradicted point-blank. There are numerous bodies which no power of inspection which we possess, even with our best modern appliances, would enable us to say, on structural grounds, whether they are plants or animals, or even organised at all; and yet we unhesitatingly pronounce them the one or the other, according as we observe the presence or absence of certain *functions*. And so with the distinction between vegetables and minerals. How then can it be legitimate to accept function as all-sufficient in one case, and to reject it as of no value in a case exactly parallel?

At the base of the animal, and at the base of the vegetable kingdom structural difference is unhesitatingly inferred from the presence of functional difference, while, at the base of the Intellectual kingdom, no amount of functional difference is allowed to necessitate any serious structural difference, much less one of corresponding amount! This is a clear inconsistency. The lowest animals are so minute, so seemingly homogeneous, or so plant-like in form, that we have no structural evidence whatever of their animal nature, yet we unhesitatingly pronounce them animals on the faith of functional phenomena. The lowest *intellectuals* do positively show various structural differences, as well as enormous functional ones; but yet the naturalist refuses to recognise the former as other than trivial, and completely ignores the latter as an element in classification. In a case in which he cannot detect the faintest trace of nervous matter, he accepts its existence on the faith of function; in a case in which function speaks of enormous

nervous differences, he refuses to listen, because the differences which he actually sees do not appear to him enormous or even great! He acknowledges his eye and his microscope to be wholly incompetent in one case when opposed to the evidence of function, while, in a perfectly analogous case, he rejects the most emphatic declarations of function, not because the eye and the microscope positively contradict them, for that they do not do, but simply because they are unable to verify them. He believes nervous matter to be so intrinsically subtle that it may exist, and often does exist, where no glass is sufficiently powerful to detect it; and yet he practically refuses to recognise in the human brain the possible existence of structural differences fully proportionate to the functional manifestations, and does so simply on the ground of not seeing them; and, not seeing them, he endeavours to explain away the functional differences by various theoretical and hypothetical reasonings, none of which can give genuine rest to a critical mind, and none of which certainly will bear the test of a strict analysis.

Yet, considering the nature of nervous matter, the human brain is very large, very much larger than that of any animal at all approaching man in size, vastly larger proportionally than that of any of the great beasts, and vastly larger absolutely than that of any other animal whatever. It is also the most complicated of all brains; and complexity of structure is one of the recognised indices of rank of structure. But, more than all, the human brain is pre-eminently large in certain directions, and those precisely the directions in which all analogy and observation would lead us, *a priori*, to expect its structural superiority. We see the important functions—mental functions, too—performed by a tiny nervous globule in the head of an ant or a bee, and we refuse to see any special value in the great nervous mass which constitutes the human forehead, and which towers in the whole superior portion of the human head! Is it possible that a mode of working so oblivious, so one-sided, or so capricious should be consistent with the truth of nature?

That these contrasts should not have been adequately attended to in the earlier times of science is not at all surprising, but it is a little startling to find them so often lost sight of, or positively pushed aside in these days, when so much has been said and written on the distinctions between human and animal brains. However, I will not pursue this topic now, as I shall have to examine it more carefully in the sequel. I am here only contending that the naturalist is not even self-consistent, does not even obey his own rules in his treatment of man, and that he has no warrant whatever for saying that this being does

not differ as much from the animal structurally as he differs from him functionally.

In all the inferior vital functions man enjoys no pre-eminence ; and we have no right to expect in him any great structural superiority in these directions. Neither is he superior to the animal in the strength or number of his lower feelings or perceptions ; and therefore we have no right to be surprised that his organs of external sense, and the inferior portions of his brain, should exhibit but slight or no superiority or difference. But he differs greatly in all his higher attributes ; and here his head does exhibit a corresponding mass of brain for which there is no equivalent in the animal head. And brain is a substance of which the ultimate structure is absolutely unknown, and of which function alone can reveal the value. If, then, function is to be held an adequate index of structure in any case, it emphatically deserves to be so held in this case.

We have not, indeed, in the case of man, the collateral support furnished to us in that of the lower forms of the animal and vegetable kingdoms, where, as we ascend in scale, structure and function become plainly concomitant, until at last the one is as strongly marked as the other ; but then we must remember that man is a wholly new creature, the first of his kind, and therefore possibly the beginning of an altogether new order of things, and consequently that, in his case, the future may have in store the aids denied to the present. All we know of nature leads to the conclusion that every group, whether great or small, has begun in a relative nucleus, and has been little different, apparently, from the group next below it. When, then, a being so strange, and, somehow or other, so wonderfully and mysteriously gifted as man is, presents himself on the theatre of existence, and asks for his place in nature, are we not bound to call up all our caution, to revise our rules and criteria, and summon evidence and aid from every available quarter, whether within or without the limits of our special studies ?

But, at all events, we are bound to be consistent in our reasonings ; and, as naturalists, we certainly have not been so in this particular case. We have not classified man with reference to his higher attributes, nor rightly estimated the breadth of the line which separates him from the inferior forms of life, nor placed him in a group in which he is congruous, nor, in fact, observed, in his case, any of the conditions of natural arrangement.

There is one fact which amusingly illustrates the inconsistency of these modern arrangements, and which, nevertheless, is expressly given as their justification. Linnæus, I presume, believed, and at all events

the vast majority of those who have accepted his system have believed, and still believe, that man possesses an immortal soul, and is of sufficient rank and importance in the scale of existence to live hereafter, body and soul, in the company of angelic beings, and in the presence of the Creator of the universe, comprehending his wisdom, adoring his goodness, and rejoicing in unspeakable bliss, while all these attributes and privileges are denied to the inferior animals; and yet, in a classification which is meant to be a summary of our knowledge, a mirror to the truth of nature, an authoritative display of the hierarchy of terrestrial organisms, we entirely ignore every one of these great distinctions, and think we have fulfilled all scientific righteousness when we say that man, though simply an animal as to his body, is a great and glorious being as to his soul! But then, if we really attach any importance to this statement, as assuredly we do, why not repeat it in our classification? There man stands simply an animal, simply a beast even. What is the use of flattering him up at one moment, if we thus take the conceit out of him at the next?

In the case of the plant, as compared with the mineral, we recognise *life* in our classification; in the case of the animal, as compared with the plant, we recognise *feeling*; in the case of man, as compared with the animal, we refuse to recognise *soul*, the greatest and grandest thing in nature, under Deity, according to our own showing. Is not this supremely inconsistent?

§ IV. MENTAL DIFFERENCES BETWEEN MAN AND THE ANIMAL.

Among the reasons assigned for denying to man a special place in the animate scale is the assertion that he differs in mind from the inferior animals in degree only and not in kind, just as they differ the one from the other. This argument has been often urged, and, among others, M. Pouchet has recently taken great pains to set it forth at length in his very interesting work on the Plurality of the Human Races,¹ in which he has devoted a special chapter to the Human kingdom. I shall not attempt here to review his arguments in detail, or the parallel arguments of other writers, as their consideration will be found implied in the general tenor of this series of papers; but it may be well to make a few remarks in this place on the main issues raised by these reasonings.

There is, undoubtedly, a sense in which all mental differences may be termed differences in degree only; but, even if we admit that those

¹ *Pluralité des races humaines*. Paris, 1865.

which divide man from the animal are such in a much more special sense, the argument will be found to prove a great deal too much. On precisely the same grounds we should be justified in saying that the difference between the human and the Divine mind is a difference of degree only; and yet no one thinks of including Deity within the bounds of the animal kingdom.

If the differences in question be differences in degree only, and not in kind also, and if to differ in degree only is necessarily to be in close propinquity of nature, then assuredly man is far nearer to God than the ape is to man; for man looks at the mightiest works of God, and looks at them intelligently, while even the lowliest of the works of man have little more special meaning for the animal than they have for the plant. The animal, indeed, sees forms and sizes, and colours and movements, and he has attention for the few phenomena which bear immediately on his wants; but all beyond is a blank. In the presence of a watch the elephant and the oyster are pretty nearly on a level; and the monkey who grins on the organ of a wandering Italian boy is as little impressed by the architectural beauties or defects of the city through which he is carried as the fly which buzzes at his ear. But how different is the case with man! To him there is nothing indifferent or wholly meaningless within the wide sweep of creative power, in so far as his eye can reach or his imagination fathom. Everywhere he is baffled, no doubt, with magnitude and complexity, with the all but infinitely great and the all but infinitely small; but everywhere he struggles, everywhere he is an intelligent and interested inquirer, and even when most foiled is never wholly vanquished. If he feels his deficiency, he does so as a matter of degree rather than of kind. He asks not for new kinds of power, for faculties unknown to him, but simply for greater strength and definiteness in those which he possesses; and, could this be granted, he feels that nature would have for him but few, if any, mysteries. He may be rash in these deductions, but does it not say much that he can think such things at all? Nor are they altogether without warrant. When his opportunities of observation are sufficient, man acquires the same definite and complete knowledge of nature that he does of his own workings; he sees in both the same laws of action, the same fundamental reason, the same fundamental mechanism, the same meaning, the same evidences of purpose. When he is arrested, the phenomena are too minute or too vast, too remote for his reach, or too elaborate for his time, his memory, or his steadiness of thought; but he does not feel that they are intrinsically and necessarily beyond the reach of faculties like his

own but greater in strength. He may be wrong to some extent; his mind may not be as *integral* as he supposes, even fundamentally; but assuredly it may be said to be entirely so, when compared with the *fractionality* of the animal mind. Here, at all events, there are obvious blanks; and these blanks are so many, so important, and so seemingly absolute, that we cannot conceive how any increase of the manifested powers would make up for the deficiencies which these blanks occasion.

But, whatever may be the proper decision of this particular point, the *de facto* state of the problem is unequivocal. Man stands to the animal in the place of a ruling providence; but the animal has no thought or heed of the wonderful works of this mundane deity. He looks at him personally as he looks at his fellows, and only knows him specially when habit has taught him that he will receive from him food or caresses. He looks at his greatest works as he looks at a rude stone, at a fallen tree, at a running stream; nothing has a meaning for him beyond the fact that the stable affords shelter from the wind and rain and the promise of food, that the road leads to the pasture, that the water in the tank is cool and clear and pleasant, and that a marble wall is a bar to progress, just as is a ledge of rock. But beyond this he sees, and feels, and cares for nothing; happy, but not happy in his ignorance, for he has no consciousness that he is ignorant.

These are the relations of the animal with *his* divinity and his world; but how different are those of man with *his* world and its ruling power! Spontaneously, irresistibly, his eye ranges over the earth, and his thought springs up to heaven, seeking for the Great Worker, and for the meaning and purport of the work. As a child, running hither and thither, inquiring and admiring; in the long centuries of his ethnic infancy, dreaming, speculating, building up systems and pulling them down again, seeking by every means to discover and picture to himself *his* God, the God whom he feels must be somewhere. As generation after generation his mind grows, his brain enlarges and consolidates, and his knowledge increases, his inquiry becomes only the more eager, the more universal, until at last he boldly grapples with the great problems of time and eternity, and, tired of mere dreaming, sets seriously to work to study them in detail, in the hope that, one by one, they will yield up their secrets, until, perhaps, in the fulness of time, his race may finally triumph over them all.

This is the thought which lies lurking in his mind when his glass sweeps the heavens, when patiently he numbers, one by one, the more brilliant of its orbs, or traces the strange lines of its mysterious nebulae, or when, fixing his gaze on the dazzling sun, he watches the mighty

movements of its ocean of radiance, and feels the pulse of his own lowly but beautiful world beating in unison with the throbbings of that mighty sphere. This is the thought which sends him a wanderer over the earth, climbing its mountains, peering into its abysses, raking up its caverns, scrutinizing its strata, and compelling the wrecks of perished ages to tell the strange eventful tale of the childhood of a world. It is of this, in a word, that he thinks when, day by day, and year by year, and century by century, he adds fact to fact, and inference to inference, and distinction to distinction, sowing a harvest which others must reap, but yet participating, in advance, in the ultimate joy, and sharing in the ultimate triumph.

Such are the relations of man to the great world and its ruling power, and these relations justify his proudest imaginings when claiming kindred with higher natures. So far, then, from its being true that the distance between him and the animal is slight, is like that which separates man from man, we should rather say that it is in some respects infinite, since it is the distance between consciousness and unconsciousness, between power and no power, between entity and nonentity.

The distance between man and the animal is the distance between the animal and the plant, between the plant and the mineral. In the one case there is a blank absolute as regards the higher powers, in the other a blank absolute as regards the lower, and in the third absolute as regards the merely vegetative structures and forces. What more has the systematist a right to require? The plant exercises a species of dominion over the mineral; the animal exercises a broader and clearer dominion over the plant; and man exercises a dominion all but supreme over animal and plant and mineral alike. Are not the analogies, the gaps, the conditions clear, broad, sharp, unequivocal? Or where, throughout the entire range of our systems, shall we look for groups more strictly definite—definite in the entire range of their respective natures, definite even superficially, and still more definite intrinsically?

Those who have looked on the distance between man and the animal as slight have always had the lowest specimens of the race in view, rarely thinking of the higher, and then only regarding them as forms improved by some fortunate combination of accidents. Listening to the tales of travellers, often the rash and uncritical deductions of prejudice and precipitancy, and this even when most sincere, they picture to themselves savage, or, as they are pleased to call him, natural man, in an impossible state of brutishness, and, comparing him with some

ape impossibly sagacious, they discover that, on the whole, the ape is the superior animal. But in these judgments there are many important conditions always overlooked, to say nothing of the fact that the extravagant descriptions on which they are based are often entirely set aside, and always seriously modified, by the sober deductions subsequently derived from more intimate knowledge and a sounder criticism.

It is also forgotten that humanity is a growth, that successive generations are to a genus or species what days and nights are to the individual, and that it is as unfair to take the early types of a race as the true measure of its nature as it would be to take the babe in the cradle or the prattler at our knee as the standard of adult power. The savage is but the infancy of humanity : civilized man is, at the best, its maturity, and may possibly be but its childhood ; and to consider the one state as artificial or accidental, and the other as alone natural, is an error, not less real, even if it be less glaring, than it would be to call manhood an accident, and the cradle the standard fact.

We have but to look around us in the present, and to interrogate the past, to see that humanity is not only now advancing, but has always been so. In certain centres every generation has differed from its predecessor, from as far back as we can trace the stream of thought ; and this difference, in the long run, has always been a progress ; and, if such progress is not everywhere visible, we have but to remember that in every organism there are interchanges of action and remission in its several portions, and that, while there is advance in one direction, there is comparative repose in another, retrogression and decay in a third. Europe is now the great focus of intellectual life, while Asia and most other great regions are seemingly stationary or retrogressive ; but there was a time when Asia was dominant, a time when America, a time when Africa was full of life ; and, could we lift the veil from the past, we should doubtless find that every section of humanity has had its eras of special growth proportionate to its status in the aggregate group. The turn of Europe has once more come round ; fully awakened from a long sleep of semi-barbarism, in which thought was but dreaming, and growth but the vegetative repair of worn-out tissues, the formation of a new and better physique, it has now sprung up into full consciousness and action, and, in the stimulus of a new day, and the exuberance of a new life, it is pouring itself over the earth, startling and exciting, and lighting up the fires of future progress in every region of the globe.

Our philosophy has chosen to assume that all this is the result of

accident: another generation may see in it the workings of a determinate plan; but, accident or not, such progress is wholly confined to man, and no known influence or exertion will enable the animal to share in it. I do not say that any living thing is absolutely stationary, even as a type, but the mental progress of the animal is so infinitesimal that he is virtually as unprogressive as the plant.

In the mind of the lowest man we have the germs of every perception and of every aspiration which can give dignity or power to the highest. We can therefore teach even the lowest of men, and teach proportionably to the patience and skill of the instructor; and teaching will here mean understanding. But to teach the animal is not to make him understand in the human sense, but *simply* to make him *remember* certain external phenomena—to fix, by dint of repetition, a certain relation between signs which we give and acts which he is to perform; but, beyond the fact that one thing is to follow another, the animal is no wiser for our instructions than a plant or a mineral would be, had we chosen to address them. The animal, of course, has his own sphere, his own knowledge, and within this sphere he can communicate intelligently with man, and man with him, and within this sphere he is capable of receiving a certain amount of instruction; but nothing can give him a thought beyond it, because he has no instrument on which such a thought can act, or out of which it can arise. We may cultivate a germ, let it be ever so feeble, but out of nothing, nothing. Did the animal possess even the germs of the higher faculties of man, we could not fail to call forth some sign of their existence; but we everywhere see his mental manifestations definitely and sharply bounded in modes which are only consistent with organic blanks.

§ V. PROFESSOR HUXLEY ON THE RELATIONS OF FUNCTION TO STRUCTURE, AND THE CAUSES OF HUMAN SUPERIORITY.

But a more important objection than the one just discussed has been urged by no less eminent a writer than Professor Huxley; and, could it be substantiated, it certainly would be a very serious matter indeed. At the meeting of the British Association in 1862, Professor Huxley, while frankly admitting that there was “an immense difference between man and the lower animals,” emphatically maintained that it was “a psychical and moral gulf” only, and “denied absolutely the existence of any structural gulf.”¹

This position seems so directly opposed to the whole of our knowledge of nature that it was difficult to believe that the words were meant to

¹ Report in *Daily Telegraph*, October 4, 1862.

be taken in their ordinary import, and they not only called forth commentary, but also suggested the necessity of a further and clearer statement on the part of Professor Huxley. This statement has been subsequently given on two different occasions; first, in the Lectures to Working Men, at the Museum of Practical Geology, and subsequently, in nearly identical terms, in "Man's Place in Nature." The answer is frank and explicit in the highest degree, just indeed as might have been expected from one so earnest and so fearless. Professor Huxley's reasons are satisfactory to his own mind, and he states them accordingly, and with that precision and lucidity of language in which he is a master. It turns out that he meant exactly what he appeared to mean, having no metaphysical opinions in view, but speaking purely as an anatomist discussing the laws of vital mechanism.

I quote this answer from the Lectures to Working Men, as the language and illustrations are studiously simple, homely, and clear, as the occasion naturally demanded. I give the passages at length, partly that I may not in any way fail in justice to the views which I criticize, and partly because their statement is interesting in itself, while the point at issue is of profound scientific importance.

"Well, I have taken a good deal of pains at various times to prove this, and I have endeavoured to meet the objections of those who maintain that the structural differences between man and the lower animals are of so vast a character and so enormous an extent that even if Mr. Darwin's views are correct, you cannot imagine this particular modification to take place. It is, in fact, an easy matter to prove that, so far as structure is concerned, man differs to no greater extent from the animals immediately below him than these do from other members of the same order. Upon the other hand, there is no one who estimates more highly than I do the dignity of human nature, and the width of the gulf in intellectual and moral matters, which lies between man and the whole of the lower creation.

"But I find this very argument brought vehemently forward by some:—'You say that man has proceeded from a modification of some lower animal, and you take pains to prove that the structural differences which are said to exist in his brain do not exist at all, and you teach that all functions, intellectual, moral, and others, are the expression or the result, in the long run, of structures, and of the molecular forces which they exert.' It is quite true that I do so.

"'Well, but,' I am told at once, somewhat triumphantly, 'you say in the same breath that there is a great moral and intellectual chasm between man and the lower animals. How is this possible, when you declare that moral and intellectual characteristics depend on structure, and yet tell us that there is no such gulf between the structure of man and that of the lower animals?'

"I think that objection is based upon a misconception of the real relations which exist between structure and function, between mechanism and work. Function is the expression of molecular forces and arrangements, no doubt; but does it follow from this that variation in function so depends upon variation in

structure that the former is always proportioned to the latter? If there is no such relation, if the variation in function which follows on a variation of structure may be enormously greater than the variation of the structure, then, you see, the objection falls to the ground.

"Take a couple of watches—made by the same maker, and as completely alike as possible—set them upon the table, and the function of each, which is its rate of going, will be performed in the same manner, and you shall be able to distinguish no difference between them; but let me take a pair of pincers, and, if my hand is steady enough to do it, let me just lightly crush together the bearings of the balance-wheel, or force to a slightly different angle the teeth of the escapement of one of them, and of course you know the immediate result will be that the watch so treated will, from that moment, cease to go. But what proportion is there between the structural alteration and the functional result? Is it not perfectly obvious that the alteration is of the minutest kind, yet that, slight as it is, it has produced an infinite difference in the performance of the functions of these two instruments?

"Well, now, apply that to the present question. What is it that constitutes and makes man what he is? What is it but his power of language—that language giving him the means of recording his experience, making every generation somewhat wiser than its predecessor, more in accordance with the established order of the universe?

"What is it but this power of speech, of recording experience, which enables men to be men, looking before and after, and, in some dim sense, understanding the workings of this wondrous universe, and which distinguishes man from the whole of the brute world? I say that this functional difference is vast, unfathomable, and truly infinite in its consequences; and I say at the same time that it may depend upon structural differences which shall be absolutely inappreciable to us with our present means of investigation. What is this very speech that we are talking about? I am speaking to you at this moment, but, if you were to alter, in the minutest degree, the proportions of the nervous forces now active in the two nerves which supply the muscles of my glottis, I should become suddenly dumb. The voice is produced only so long as the vocal chords are parallel; and these are parallel only so long as certain muscles contract with exact equality; and that, again, depends on the equality of action of those two nerves I spoke of. So that a change of the minutest kind in the structure of one of these nerves, or in the structure of the part in which it originates, or of the supply of blood to that part, or of one of the muscles to which it is distributed, might render all of us dumb. But a race of dumb men, deprived of all communication with those who could speak, would be little indeed removed from the brutes. And the moral and intellectual difference between them and ourselves would be practically infinite, though the naturalist should not be able to find a single shadow of even specific structural difference."*

These illustrations are very clear and very simple, and quite decisive as far as they go, but unfortunately they carry with them, as here used,

* *On the Causes of our Knowledge of the Phenomena of Organic Nature.* London: Hardwicke, 1863. pp. 152—155.

two fatal defects. Did they prove anything, they would prove infinitely too much; but, in point of fact, they do not at all touch the question at issue.

In the case of the watch, the structural alteration is the *cause* of the cessation of function—this cessation the *effect* produced by this cause. If, then, a cause “of the minutest kind” may produce “an infinite difference” in the effect, it is plain that there is no necessary proportion between the magnitude of the cause and the magnitude of the effect—no means of inferring the one from the other. If there be no necessary proportion between the *magnitude* of the cause and the magnitude of the effect, why should there be any between the character, nature, or kind of the cause and those of the effect? If one of the necessary conditions of causation may break down, what security have we for the others? Under circumstances like these, reason would be without guidance, and certainly an impossibility.

In touching causation we are dealing with the greatest fact in nature, the rule of all phenomena, the fundamental law of the universe. That the effect is exactly, and in all respects proportionate, to the nature and circumstances of its cause; that, as the one varies, so varies the other, and that, therefore, to those who can read the signs, the one is always, and necessarily, the perfect index and mirror of the other—this truth is not only the basis of all certainty to man, but equally is it the sole rule of all phenomena. For that which does a thing must have the power to do it, and must do it in accordance with the nature which belongs to it, not in accordance with a nature which it has not got, and in accordance with the time and circumstances which are present and available, and not in accordance with those which are not present or available; and so on through all the categories of possible conditions. Nothing, it is plain, must be allowed to stand in the way of this law or dim its lustre, and, wherever a clash seems to come, it is clear that there is an illusion, an ambiguity, lurking somewhere. Such is the case in the present instance; and we must endeavour to detect the fallacy.

In all causation there are two fundamental ideas involved, two great *factors*, to borrow the language of the mathematician. These are the *agent* itself, and the *force* with which it acts. Without the conjunction of the two there can be no result. The one determines the character or kind of the effect, and the other the strength or intensity of its manifestation.

So is it with mechanism; we have the structure itself and the force which acts on it; and this force may either act entirely from without

and be inherent in some other body, or it may be so concentrated within the mechanism as to be virtually a part of it; but even then it always requires renewal from without.

Now, though the agent or structure be obviously the higher of these two factors, they are both equally necessary in the production of phenomena; for take away either and the other is powerless; interfere with their conjunction, and all phenomena are arrested as effectually as if they had been annihilated. It matters not in the least what may be the nature of the interference, or what its amount in material quantity. Whether it be a ship's cable or a spider's web, a grain of sand or a wall of rock, is perfectly indifferent, provided the check be equally complete. Whether we merely crush the bearings of the balance-wheel, or dash the entire watch into a thousand fragments, makes not a shadow of difference to the question of function; and, if not, it is clear that an injury which, in effect, is equal to the greatest cannot be called slight in a mechanistic, productive, or functional sense, any more than a minute touch of colour, or a slight variation in line, which produces a hideous deformity can be called trifling in an artistic sense.

In the language of causation, the word *cause* is used in two distinct senses: an active and a passive sense, both equally sanctioned by custom. The active cause is the only *efficient* cause, the only cause properly so called. The passive cause is simply *impedimental*, yet we apply to it, figuratively, the language of action; and hence one of those sources of the ambiguities which so often confuse our reasonings. Thus the rock which diverts the course of a projectile must be *spoken* of as the cause of the new line of motion; but the mind ought to see that the rock is simply an *impediment*, and that the new motion is but the old motion under altered circumstances.

Hence it is to the efficient or real causes only that the law of causation is applicable, in the full sense above mentioned; in impedimental causation all we are concerned with is the fact and amount of interference; in other respects the nature of the interfering body is a matter of complete indifference. To cause, that is, to make a watch requires skill; in interfering with, or destroying one, a fool may be as efficient as a philosopher.

Thus it is clear that the case before us leaves the laws of causation, as usually apprehended, entirely unshaken, that it does not show that an effect may be in any way disproportionate to its cause, or that function may in any case fail to be a true and perfect index of structure; and this, and this only, was the *quod erat demonstrandum* of the theorem.

But the illustration does not touch, in any way, the question at issue. If the brain of man and the brain of the monkey were, naturally, like and equal, only that the brain of the monkey had a portion of it *crushed*, then indeed the illustration would be pertinent. *But the two brains are equally normal, the two watches equally sound, untouched, and in perfect working order; and yet there is a gulf in function!*

Had Professor Huxley shown that a slight *improvement* in structure might produce an immense gulf in function, then indeed the argument would have been to the point; but this is what no one has ever shown, or ever will show, until we can abrogate the laws of causation and re-make nature.

Undoubtedly there are cases in which an alteration, trivial as to the *quantity* of matter displaced, may produce a great functional difference; but then mechanism is essentially a question of adjustments, not of gross quantities, and terms of comparison must have reference to this fact. If by a variation slight in *quantity*, whether in the rifling or otherwise, we succeed in making a gun carry twice the distance that it previously carried, we surely should not say that we had produced an immense difference in function with a trifling difference in structure; but, on the contrary, we should feel that we had altered the cause proportionably to the effect, and that the *quality* of the piece was *immensely* enhanced.

In the case of nervous matter, all variations may be called small as to quantity, however immense the mechanistic changes; and even were the brain of the ape equal in gross size to that of man, we should still be justified in saying that the quality, that the structure of the human brain was immensely superior, since its effects were immensely superior. How much more have we a right to say all this, when we see that the human brain is so much larger than the simial absolutely and relatively, some three or four times greater in absolute size, still more disproportionate relatively in all the larger apes, and more still in its higher regions!

As regards language, too, Professor Huxley has surely fallen into an error equally grave. Language is the expression of thought, the *consequence* of thought; how then can it produce that which has created it? We are dealing in figures of speech when we talk of language giving ideas; the phrases are true in certain senses, but they are clear absurdities in others, and therefore we must distinguish. Man has a language because he has ideas; and his language, in the long run, will be found proportionate to his ideas and his wants, due allowance being made for circumstances. The ape also has a language proportionate to

its ideas and its wants; and the difference between these two languages is exactly the difference between the two sets of ideas and wants, between the two kinds of mind; and this difference is a moral and psychical *gulf*.

The savage has a language, and has held it for thousands of years, and he is a savage still, with no improvement worth mentioning. Another race has a language and has worked wonders with it—why? Because it has had ideas, of which the language is the expression; and it has had ideas because it has had a structure fit for their production, when the requisite external conditions were presented.

A player sits down to an instrument and plays, we will say, indifferently well: another takes his place and entrances the listener with the beauty, and grandeur, and variety of his strains. But he has not added a particle to the instrument. He has *created* nothing: he has simply set in motion that which was already there, and drawn forth a pre-existing capacity. Set this same great instrumentalist to work upon a deal table, and the result of his strumming will be anything but entrancing. The musical instrument is man, the player the circumstances which call forth its inherent powers, and the deal table is your ape, out of whom no circumstances will ever get more than a *dum, dum*, or a *scratch, scratch*.

Till there are ideas, there is no language; till the brain acts, there is no idea; and till a structure exists, it can have no action. How then should the word produce the idea, or the idea the act, or the act the instrument? This is the plain, inexorable sequence of causation, and whatever conflicts with it is assuredly an error.

What then does language do for man? Just what air, and water, and food, and light, and heat, and action, &c., &c., do for him. It is one of the external conditions favourable or necessary to cerebral growth. It is one of the aids in the acquisition of knowledge, in the exercise of the mental organism. But it is not the air which determines that an animal shall be a kangaroo and not a cow; neither is it the water, nor the food, nor the light, nor the heat, nor the motion. All these things are as necessary to the cow as to the kangaroo; but one is kangaroo because the seed sown was kangaroo, and the other is cow because the seed was cow; and for the same reasons is man, man, and ape, ape. If this be not the explanation, then we must have patience till a better comes; but assuredly no explanation which so palpably conflicts with the inevitable sequence of causation can have the least chance of being the one required.

Language, no doubt, is one of the grand distinguishing attributes of

man; but it is one only out of many; and it is, besides, one of his own sole making, just as much as is the written character which expresses it, just as much as is his pen, his press, his loom, his engine, his wire, his art, his science, his mechanism. Let it be granted that it is the diadem on a regal brow; still it is symbol, not cause. Like the star on a hero's breast, it has followed, not preceded, his prowess.

Of course man must have had a certain glossal and lingual structure to enable him to speak; but, without a brain that required speech, this would have done no more for him than it has done for the parrot. When there is the pressure of internal want, it makes external means of some kind. One man learns to write with his left hand because his right has been shot off, and another manages to write excellently well with his toes because both hands have been amputated; while hosts of other men, with perfect hands and pliant fingers, can hardly be induced to learn on any terms, and have nothing to say when they have learned.

Surely Professor Huxley speaks hastily when he assumes that a race of dumb men, deprived of all communication with those who could speak, would be little removed from the brutes. Could such an abnormal condition co-exist with healthy structure everywhere else, such a race would just be what their general structure determined. If that was very low, they would be savages, and remain so; if it was high, they would speedily invent a language. They would speak in gestures, and, from instinctive and natural gestures, they would speedily advance to purely conventional ones, until they had in time established a complete and efficient system; and then, with a corresponding graphic system, they would gradually accumulate, record, and transmit their knowledge, and advance in the career of improvement, heavily shackled, no doubt, but borne on by that which alone can give strength or inspire effort in such a career—a superior mind, a superior brain.

Deprived of speech, the dumb speak with their eyes, their gestures, their fingers, their slates, their pens: deprived of sight, the blind see with their ears, and their touch. Where there is a will there is a way; but what can give the will unless it be the internal structures? You may awake the sleeper by a sound from without, but you cannot awake where there is nothing to be awakened. We have been led away by vague speculations respecting the power of external influences, not distinguishing between that which is only material and force, and that which is the regulator and user of force. We have given to the external factor that which belongs solely to the internal one. We have assumed that it is the steam and fuel which make the engine, and that, by

properly managing them, we can alter the engine. We have one mechanistic code for man and another for nature, forgetting that all mechanism, like all chemistry, is fundamentally one and the same, being nothing more nor less than successive repetition of the one law of causation, as the other is successive repetition of the combination, in determinate proportions, of two unlike yet congruent bodies.

All formative power resides in the first and internal factor of the great duality—in the *agent*, in the *instrument*, in the *mechanism* itself. This is the architect, and the sole architect. The second factor is but the bricks, and the mortar, the stream, the wind, the wood, and the iron. This factor has no constructive power whatsoever. It can injure to any amount, but is necessarily passive as to formation, since it is neither intelligent, nor structurally combined, so as to act automatically and as a whole.

The first factor *has* structural power, but it derives this from the fact of its being a definite and arranged aggregate, acting as a whole, automatically and mechanistically. But it is not intelligent, and therefore it has no power whatever of varying its work consistently, and with the correlations which all modifications in mechanism necessitate. Only mind can alter in this sense. This first factor, therefore, can do nothing more than work out the pattern which its plan prescribes. If the second factor does its duty, gives the requisite material, the requisite pushing, the work comes out in perfection; if otherwise, there is more or less of imperfection. But, if this second factor exceeds its duty, if it pushes in mortar where stone is wanted, the machinery suffers. If the pressure be not too excessive, if the injury be not too great, there are means of resistance or repair; but there is no provision made for the alteration of plan, so as to meet and harmonize accidental influences. Only the direct action of intelligence can do this, and the formative agency is non-intelligent.

There is no possibility of escaping these primary inevitabilities. When we plunge into a fog, any road may seem the right; but, if we are to make our way through the immense complexities of nature, we must, as far as possible, keep out of the fog until we have found the proper road: then we may feel our way with some chance of safety. The great laws of the universe are necessarily few and simple: they are mere expressions of the few primary and inherent necessities of being, and in proportion as we draw them out and formulate them shall we walk in light and security. There is chemistry on the one hand, mechanism on the other, and causation underlying all. And with these there is *intelligence*, the sole arranger, the sole correlator,

the sole ultimate cause of order in the sense here implied. Give these functions to any other thing or combination of things, and instantly the fog descends, and all is blind groping, labour in vain, energy wasted, opportunity lost.

The living loom then builds itself up according to primary pattern. It does more: it also builds up a succession of looms, each forming the succeeding one; and this growth, like the individual growth, is a sequence of changes, advancing when the external conditions are favourable, tending to deterioration and destruction when otherwise; but there is always an aggregate advance. The race grows, changes, develops, dies, just as does the individual, by the same laws, by the same chemistry. The individual is but an atom in the aggregate life, a globule in the long lines of tissue which form the grand totality. But the development from first to last is automatic, and yet regular, and therefore, of necessity, in accordance with original plan.

We are not called upon, then, to reject the theory of development, either in the group or in the individual, but simply to remember that there are two theories in question, two kinds of development—Nature's development, and Mr. Darwin's development. Nature's development is a development by fixed plan, and therefore it gives order, consistency, and correlation, individually and aggregately, from first to last. The immediate agent in this development is the first factor of the duality of causation; and this factor is competent, because it is mechanistic: for mechanism is inherently competent to produce any amount of order, according to its plan. Mr. Darwin's development is development *without plan*, because it is indefinite development, and all plan is definite; and therefore, in so far as it can produce anything at all, it must produce disorder, inconsistency, uncorrelated growth, and consequently abnormal and destructive growth; for the agent in it is the second factor of the duality, and this factor has no competency in the direction of orderly phenomena.

Such, I submit, are the plain inevitabilities of law, and such too, I am satisfied, will be found the clear teachings of fact, when facts are observed and recorded with due care, and with due criticism.

L. BURKE.

(*To be continued.*)

PHRENOLOGY—WHAT IS IT?

THERE is something in Phrenology; and yet not much. It has more foundation, and is far more respectable, than Mesmerism, Table-turning, Spirit-rapping, or even Astrology. But it is hardly as satisfactory as Physiognomy; because you are far more likely to get an insight into a man's character by looking at his face than by the examination of his noddle without his face. Phrenology had its rise, some seventy years ago, in Germany, a land fruitful in wild and ephemeral doctrines. Its founder was a doctor of medicine, Gall, and its apostle another doctor, Spurzheim. With the exception of these two men, who were skilful anatomists, the cultivators of the doctrine have, with very few exceptions, been mere lay-brothers or amateurs, and no anatomist, physiologist, or metaphysician of mark has embraced it: on the contrary, they have one and all openly denounced it as a delusion.

The followers of Phrenology define it as the doctrine of the special faculties of the mind, and of the relation between their manifestations and the brain. The mind is divided by them into a number of faculties, to which they give a local habitation and a name on the outer surface of the brain-case; insisting, without a particle of evidence, that there exist in the brain itself organs corresponding with the localities they assign to them on its envelope. The strength of the faculty is made to depend on the size of the supposed organ.

Here are a few samples of the phrenological faculties:—"Amativeness" is defined as the mental faculty which leads to physical love. We had thought that sensual love was an instinct that had no direct connection with the brain, seeing that it is by no means confined to man, or the mammalia, but extends over the whole organized creation—to animals which have no special brain, and to vegetables, which have no brain at all. "Inhabitiveness" is the faculty which propels man to a love of home, &c., &c. We must suppose this faculty to be either altogether wanting, or very poorly developed, in the nomadic tribes of Australia and America, who have neither house nor home, but wander over hunting-grounds in quest of food, limited only by the hostility of neighbouring tribes, who rove for the same purpose. Neither could it have been well developed in the Northmen, who left Scandinavia; nor in the Turks, who left Asia for Europe; nor in the Tartars, who quitted Tartary for China.

The faculty of "Destructiveness," or the disposition to destroy, it appears, by the account given of it by the phrenologists, may be exercised either for legitimate or wicked purposes, everything depending

on the size of the imaginary organ. Hence under it may come great warriors, butchers, hangmen, and murderers. "Secretiveness" is the faculty which shows a propensity to do things in a clandestine manner. It may be exercised for a good or an evil purpose. Under it, therefore, may be included rogues, thieves, robbers, prudent merchants, and reticent statesmen. The faculty of "Veneration," according to the founders of the doctrine, is one and the same with that of religion; the worship of God being in direct proportion to the development of its organ. It ought to be wholly wanting, according to this view, in certain savages who do not believe in the existence of any god, and equally so in the Hindus, who believe in too many. The faculty called "Marvellousness," as its name implies, is a strong belief in the miraculous and supernatural, or, in other words, extreme credulity. It must be eminently developed in the Hindus (although it is not yet proved or even alleged that it is so), since they implicitly believe that the stable earth rests on a tortoise, without troubling themselves about the pedestal on which the tortoise rests. We can fancy, too, that the organ must be of handsome dimensions in the brains of Drs. Gall and Spurzheim, and their numerous followers.

The organ of "Language" is said to be situated at the back part of the orbits or sockets of the eyes, and when highly developed it causes the eyes to protrude, making what Dr. Gall calls "bull-eyes," vulgarly called goggle-eyes. All persons having such eyes are alleged to have a wonderful facility of acquiring languages. It was this supposed fact, indeed, that led to Dr. Gall's discovery. If the theory be true, the organ ought to be eminently deficient in the pig-eyed Chinese, among the computed 400 millions of whom not a goggle-eyed man or woman is to be seen.

As to the thirty-six faculties into which the mind of man has been divided by the phrenologists, and each of which is imagined to have a special organ of its own in the brain, no vestige, as already stated, of any such organs is traceable; yet, drawing on their imaginations, the phrenologists proceed to assign a locality for them as if they were realities. "Amativeness" they make to be placed in the cerebellum, or little brain, which is in the back or lower part of the skull; it is double, and the measure of its power is to be judged by the extent of the space which lies between the backs of the ears. Directly over the middle of "Amativeness" lies the region of "Philoprogenitiveness," or the love of offspring. In most human heads there is a bump or prominence hereabouts, and upon its size depends the intensity of parental love. It ought to be larger in women than in men, but unluckily the

reverse is the case. The seat of the organs of "Combativeness" and "Destructiveness" are placed, like the two last, at the back or ignoble part of the head, and those of "Secretiveness," "Acquisitiveness," and "Constructiveness" at the side of the head. The organs of "Veneration," of "Hope," of "Firmness," of "Conscientiousness," of "Marvellousness" and "Ideality" all lie about the top of the head. The organ of "Size" is allocated at the inner corner of the arch of the eyebrow, while the organ of "Colouring" has its station in the middle of the arch of the eyebrow. The organ of "Melody," or music, lies above the outer angle of the eyebrow. The organ of "Configuration," or the power which takes heed of forms and figures, is said to lie in the internal angle of the socket of the eye, and when large it has the peculiar effect of causing the owner to squint. According to this view all great painters ought to be squinters; but we do not remember that Raphael or Titian squinted, and we are quite sure that Edwin Landseer does not. The organs of "Comparison" and "Causality" occupy the forehead, as the most intellectual portion of the brain.

But now as to the human head, which is the subject of Phrenology. Excluding that portion of the face which has no essential connection with the brain, it consists of the brain itself; of three membranes which cover it; of the skull, which the brain forms for its own protection, as the egg and the oyster form for the same purpose their own shells. Over this long covering of the brain lie cellular substances, skin and hair, as in several other parts of the body. As to the brain itself, it consists of two principal parts, which are duplex—the cerebrum and cerebellum, or great and little brain, and of the medulla oblongata, which is single, but of which, as it is deep-seated and incapable of manipulation, the phrenologists take no account, and ascribe to it the seat of no faculty. But the interior of the brain contains a complex machinery, the uses of which, after 2000 years of examination, are utterly unknown and probably unknowable. All parts of the brain are in connection with each other, and, like the heart, the lungs, and the organs of digestion, it has all the appearance of a single organ, being only of more complex structure than those which have but a single function to perform, a mere animal one; whereas it is called upon to perform two, an animal and a mental one. As far as we know, every part of it is equally engaged in the performance of every function, and therefore to attribute separate functions to separate organs, which are neither proved nor even alleged to exist, is but simple unattested assertion. The most skilful physiologists have hitherto failed to discover the functions and uses of such inconsiderable organs as the "Spleen" and the "Pancreas;" and here

we have men, often neither anatomists nor physiologists, pretending to have discovered all the functions and uses of the most complex organ of the human frame, the primary source of life and thought.

What, then, is it that the phrenological operator has to act upon in so far as the living subject is concerned? Nothing but the outside of the head. This he manipulates, which, under the circumstances, is nothing else than groping or feeling in the dark. The first thing he encounters is the hair of the head, then the skin, then the skull, consisting of two hard tables or layers, and then three different membranes. All these obstacles lie between his fingers and his judgment of the brain, and when he reaches the latter he reaches but a part of its mere surface. As to the skull or bony envelope, even its internal surface is but faintly impressed by the convolutions which characterize the mere surface of the brain; while its external surface is marked by few inequalities, and these without any relation to the brain, their purpose being the insertion of muscles, or giving room for the organs of sight or hearing. A symmetrically-formed head, large in proportion to the body it belongs to, with a broad and high forehead, is an indication of intellectual power; but it is a matter of pure accident whether this power shall make its appearance in the skilful leader of a barbarous horde, or in a great poet or great mathematician—in an Attila, a Shakespeare, or a Newton.

ETHNICUS.

PRE-HISTORIC TIMES.¹

THE change which has come over the spirit of our scientific dreams within the last quarter of a century is in many directions so important, in some so startling, in all so suggestive of future progress, that it may well make us pause ere we hastily pronounce on any novelty of opinion that challenges our attention, however wild the aspect it may seem to present; for within that brief period there are few of the sciences which have not established some daring innovation, or demanded some serious modification in existing belief. Opinions which then were not only wild and baseless, but even little short of positive impieties, are now not only innocent and respectable, but the actual creed of every adequately-informed mind. Truths, which prudence then threw out as suggestions and possibilities merely, are now realized facts, and utter-

¹ *Pre-historic Times, as illustrated by Ancient Remains, and the Manners and Customs of Modern Savages.* By JOHN LUBBOCK, F.R.S., &c., &c. Williams and Norgate. 1865.

ances and prophecies, lost amid the din of the prevailing ignorance, are now reproduced by other men as original thoughts; and such, doubtless, they are in many cases, though in others they are more probably due to hints and suggestions floating on the surface of opinion, the sources of which have been forgotten by those whose minds they have guided to the truth.

So it has been always, and so it must be again and again; but, fortunately, a toleration constantly increasing must at last reach the level of fulness, nor will our caution be well able to slumber dangerously when the stimuli applied to it are so numerous and so powerful. However desponding may be the comparisons which some may indulge in when contrasting the past with the present, the present with the future, the scientific mind, at all events, cannot well give way to gloomy forebodings. Borne onwards on a stream constantly widening and deepening and strengthening, it looks back only to see majestic rivers gradually narrowing into slender threads, and looks in advance only to mark the unequivocal signs of a progress always accelerating, of an expansion which must ultimately merge in a great ocean of knowledge.

We are reminded of these things by the circumstances under which we are called on to notice the work of Sir John Lubbock on Pre-historic Times. Seventeen years ago the precursor of this periodical, the "Ethnological Journal" of the dark ages of 1848 and 49, briefly noticed, in its first number, the "Natural History of the Human Species," by Colonel Hamilton Smith, in which a chapter or two is devoted to the consideration of the bones of man found among the remains of extinct animals, a subject which then had awakened but imperfect attention, and of which very few had appreciated either the significance or importance. Now, it can command its special and extensive treatises, is occupying the attention of eminent men in various regions of the earth, and has entered as a leading element into ethnological science. Then, the archaeologist who spoke of the remote origin of man as a necessary deduction from monumental evidence was quietly set aside as a visionary, or formally silenced, as far as that was practicable, by an appeal to irresistible authority. But, lo! in a few short years, those who refused the little have had to accept the great, and, after deeming an extra thousand years or so in the history of the earth as altogether preposterous, the unit of their reckonings has grown into millions. The *anno mundi* has run back beyond zero, into distances that look like eternities, and the first appearance of man has become a question on which the geologist is the only authority.

And now, bowing his thanks to the naturalist and the palæontologist,

who have thus so soon and so handsomely knocked off the shackles from his limbs, the antiquarian may surely be allowed to indulge a little in the soul-comforting "Did I not tell you so?" and to suggest the reasonableness of paying attention to other portions of his prophecies. There are, too, sections of the subject which are more especially his own province, and which demand a greater familiarity with the evidences than usually falls to the share of the naturalist; and he may fairly insist that these shall not be too hastily slurred over by the new race of inquirers. If human antiquity has been so prodigiously extended in one point, we ought to allow every required elasticity in others. For surely, after having ventured to differ from the written word of sacred history, it would be foolish indeed were we to hold ourselves in thralldom to the annals of Greece or Rome. The materials of archæology are the facts furnished by its existing monuments, whether physical or mental, whether the vestiges of its dwellings, or temples, or sepulchres, or arts, or the wrecks of its languages, literatures, creeds, myths, and superstitions; and these materials are to be interpreted, not by what remote times have told us about them, or the like things, but by the same rules which have created sciences in other directions, and have given such luminous and startling meanings to the parallel materials of geologic antiquity. Monuments are best explained by monuments, myths by myths, languages by languages, literatures by literatures; each subject, first, in the light of its own facts; then, all the collateral evidence that can be brought to bear upon it. That which grows out of another will always recognise in its structure that out of which it has grown; and thus we may *stratify* growths, and that stratification will reveal a history, and such histories have, may be, as they have often already been, startling and important revelations. They have given us geology with all its wonders, and in the brief space of a few years, while we might have gone on castle-building for eternity, and been farther from the truth at last than we were at first, had we continued to insist on basing our labours on written history. And so with archæology, which is but geology in another direction: we might have had it to-day an imposing science, had we chosen to listen to the solitary voices that were preaching and warning; but "great is Diana of the Ephesians," and venerable, and not to be trifled with, are the traditions and writings of Greece and Rome, and therefore archæology is as yet unformed, a great desert of facts and conjectures, in which, to parody a celebrated American definition, every man's opinion is as good as every other man's, and a deuced deal better.

The geologists and zoologists, however, will now help us, we trust, to preach this gospel, old to them, but new to the classical inquirer; and we of course expect that they will set the good example of practising what they preach, out of their special limits as well as within them. While the matter concerns *Hippopotamus major* or *Elephas primigenius*, we feel quite sure that everything will go right, for the aberration of one reasoner will be presently checked by the juster criticism of another; but when we come to speak of the cromlech, or the mound, or the stone circle, or the rude monolith, then, unfortunately, we are all apt to fly off at once to the Druids, or Cæsar's Commentaries, or Tacitus, or Strabo, or Herodotus, or to the shadowy allusions in Genesis or Exodus—in fact, to the very authorities which, had we not before broken loose from them, would have prevented our ever recognising either *Elephas primigenius* or *Hippopotamus major*, or the flints of the drift, or even geology itself.

It surely is not seamanship to set sail on an unknown ocean, trusting implicitly to hypothetical charts, and to compasses of our own invention, in which the essential feature is the omission of that magnet which can alone give security; and yet for how many ages has this been the only seamanship deemed reasonable or practical in historical inquiries, and how many trust to it implicitly still! But, thanks to these inroads of physical science on our domain, the dawn of a better day is fast approaching, and the next generation or two must witness disclosures possibly not less startling or important than those which have electrified the present age.

Archæology has magnificent materials at its disposal, and only waits for the spell which alone can give meaning to them. There is no mystery in this spell, nor in the mode of using it, but the working of it takes time, and we are in a hurry, and so try more expeditious methods, but only to realize in the end the truth of the adage that "the longest way round is the shortest way home." What we immediately want in archæology is, in the first place, a careful classification of monuments, based exclusively on the existing facts, and then special studies of the several groups, first individually, and secondly in their relations with each other, the great aim being to discover genuine sequence and stratification. These studies should precede all theories, all attempts at exposition. The verdict must come after the evidence, not before it.

Thus, for instance, we may take the cromlech, a very prominent and very important monument. Seeing that it occurs under a great variety of circumstances, the necessity of discriminating these arises;

and, as it is the tendency of ideas and customs to develop and become more and more elaborate, our chances of reaching the primary forms and meanings of the monument will be greater in the simpler than in the more complicated specimens. As we find the monument sometimes quite unconnected with either the mound or the circle—as, for instance, in the case of “Kit’s Cotty House” in Kent—we must not hastily infer that the mound and circle once existed, and were subsequently removed, because we find this conjunction in the majority of cases, but we should rather look about in all directions, within the range of our information, for other isolated cromlechs, and see whether, in their structure and concomitants, there are any characteristics differencing them from those occurring in connection with the mound or circle.

We may next view this monument as connected with the circle only, such as we find it at Abury, or at Pentre Evan in Pembrokeshire, described by King in his *Munimenta Antiqua*, and then look for the range and specialities of this particular conjunction. Next we may examine it as connected with the mound, but excluding the circle; and, finally, we may study it as combining the three elements of cromlech, circle, and mound; and in this form it presents to us two distinct divisions. In the one the cromlech is on the top of the mound, either wholly uncovered or partially or completely covered; and in the other we find it on the floor of the mound, sometimes so circumstanced that the mound may have been altogether an after-thought, and sometimes in a manner which clearly proves it to be an original and essential portion of the aggregate work.

Now a comparison of this kind will soon be found to present many important circumstances. It will, in the first place, disclose clear evidences of sequence in these monuments. Not only will the cromlech itself be found to advance in complexity till it ultimately merges into the sort of vaulted chamber and passage found in great mounds like that of New Grange near Drogheda and a number of Danish structures, to say nothing of the later and more architectural monuments which are evidently but developments of the cromlech mound, but it will also be found that this advancing complication is concomitant with important facts in distribution, while the study altogether sweeps away many of the statements of early writers relative to the range of these monuments and their primary centres of origin.

We are now in a condition to assert positively that these structures, so far from being universally, or even widely distributed, have very definite and often very peculiar limits, and that, so far from looking for their origin in any part of Asia, their true and primary seat is North-

western Europe, if it be not especially the British Isles. The cromlech proper, whether solitary or connected with the circle or mound, is, in so far as the facts are yet known, altogether wanting in the archæology of America. Certain statements to the contrary have indeed been made, but they have either been altogether vague and uncritical, or have not stood the test of subsequent scrutiny.

In Africa, these monuments are found in Tunis and in Algeria, but, as far as we remember, not elsewhere. In Asia, they have been spoken of in connection with Syria and Persia, but only a very few cases have been distinctly mentioned. In Southern India, however, we find them in great numbers; but, with these exceptions, Asia is, like Africa, a blank. There are certain vague rumours as to the existence of such structures in Australia, but nothing definite is recorded as to a fact so curious and important should it prove true. Even in Europe these monuments are strictly limited, and the lines drawn many years ago by Professor Worsaae in his "*Primæval Antiquities of Denmark*" have not, we believe, been seriously modified since. These monuments are numerous in the British Isles, in North-western France, and in Denmark. They occur also in the southern angle of Sweden, in the north of Germany, and in Holland, and also in Central and Southern France, though more rarely. "They occur also in Portugal and in Spain, while, as far as is known, they never have been discovered in the interior parts of Europe, in the south of Germany, Italy, Austria, or the east of Europe. They are very distinct from the tombs of the pagan era of those countries, both in their structure and their simple funereal contents."¹

Since this was written, however, curiously analogous, if not identical monuments have been observed at Saturnia, in Etruria, of which an interesting account is given by Mr. Denis in his "*Cities and Cemeteries of Etruria*;"² and similar structures are stated to have formerly existed at Cortona and at Santa Marinella. A more minute description of these Saturnian ruins is still a desideratum; for, though some of them are described as exact counterparts of Kit's Cotty House, they are spoken of in the aggregate as "quadrangular chambers," a phrase which would suggest four side-slabs instead of two. They are mostly in ruins, formed of large rough slabs, one on each side, and covered either with two such slabs inclined like a penthouse, or with one very large one sloping towards one end in the usual fashion of such monuments.

¹ Worsaae, *Primæval Antiquities of Denmark*. Translated by W. J. THOMS. 8vo, London, 1849, p. 105.

² Vol. ii., p. 314, &c.

They are mostly enclosed in a tumulus, "*so as to conceal all but the cover stones, which may have been also originally buried.*" These italics are our own, because such absence of complete covering, so often also seen in the monuments of Denmark, is little suitable to the idea of a tomb any more than is the passage which usually leads to these so-called sepulchres. No vestiges of interments are known to have been discovered in these Saturnian chambers, but their sepulchral character is still taken for granted; and the same remark is applicable to many other monuments of this order.

Neither are any interments spoken of in connection with the curious chambers found by Irby and Mangles on the banks of the Jordan. These were genuinely quadrangular chambers, being "built of two long side-stones, with one at each end, and a small door in front, mostly facing the north; this door was cut in the stone."¹ Otherwise the blocks were quite rough and apparently unhewn. The internal size of these chambers was only five feet, owing to the fact that the two end-stones were considerably *within* the side-slabs; and why a space so restricted should require a permanent door seems unintelligible if the monument were originally sepulchral. It would be perfectly natural in the case of a religious shrine intended as the sanctuary of the sacred fire, an idea which gives consistency to a host of evidences which will not at all square with the sepulchral theory.

Cromlechs or cromlech-like monuments are also spoken of as existing in Sardinia and the Balearic Isles; while Mr. Denis informs us, on the authority of the Notes and Sketches of Catherwood, the well-known fellow-labourer of Stevens in Central America, that they exist in abundance in the Regency of Tunis, the ancient territory of Carthage. The sites on which they were observed are Sidi Boosi, to the north-east of Hydrah, Welled Ayar, and Lheys, at the first of which places they were particularly numerous.²

We have not yet seen the account of the monuments of this kind found in Algeria by Messrs. Christy and Feraud,³ and referred to by Sir John Lubbock in the work before us, p. 59. We learn that they occur in great numbers in the neighbourhood of Constantine, the travellers having seen more than a thousand in three days—a number, of course, which includes not only cromlechs, but also stone circles and

¹ *Travels in Egypt and Nubia.* 8vo, Lond., 1823, p. 325.

² *Cities and Cemeteries, ibid.*, p. 322.

³ *Recueil des Notices et Mémoires de la Société Archéologique de la Province de Constantine*, 1863, p. 214.

other analogous structures of the so-called Druidical type. Fourteen of the cromlechs were opened by the travellers, and all of them turned out, "as might have been expected," says Sir John, to be places of burial. But we also learn that the corpse was sometimes accompanied by rings of copper or iron, as well as worked flints and fragments of pottery, and "in one case even by a coin of Faustina, who lived in the second century after Christ." But surely a find of this latter kind bespeaks a long subsequent, not a primary interment; for we cannot for a moment suppose that cromlech building was an institution of Roman times, in an old Roman colony, where almost every idea must have been as completely Roman as in Italy itself. That structures of this kind should still be erected even at the present day by some of the hill tribes of India, as pointed out by Sir John Lubbock on the authority of Dr. Hooker,¹ is curious, but not unnatural, since it is among such secluded populations that traditionary usages would be longest kept up; but the purposes of science require much more precise and detailed accounts of facts of this kind than travellers usually furnish.

However, the range of the structures under discussion is strictly and curiously limited. They thin off as we recede from North-western Europe, or suddenly appear in numbers in that Northern Africa in which we trace the footsteps of so many conquerors, and expect so little from the native races—a site in which Tyrian, and Roman, and Saracen, and Turk have successively ruled, and in which still older nations have left their impress in cyclopean structures that take us back to pre-historic Greece and Italy; or, finally, they appear in that Southern India in which, at the present day, this same Western Europe is building up a new empire and planting a far other and far higher range of monuments.

Nor is this all. Not only do the monuments thin off, but they follow the coast-lines of the ocean, or the Mediterranean, thus speaking of special settlements or simply commercial relations in some cases, and of important rule in others. And, more than this, the distant monuments, where they have been accurately described, do not keep the ruder and more archaic forms which they often bear in the British Isles and North-western France. Even the monuments of Denmark, as far as we have seen them described or figured, have all the sharpness and family likeness which would bespeak an introduced civilization; for these works do clearly imply civilization. We must not too rigidly estimate civilization by modern tests. Its ancient indices are not so

¹ *Himalayan Journal*, vol. ii., pp. 276 and 320.

much the progress found in particular arts and kinds of knowledge, since these may be altogether of foreign importation, but rather in the magnitude of public works, the intelligence, social organization, and national wealth which they imply, and the pains and skill bestowed on obviously native productions. In this sense we may justly speak of civilizations, even in the stone age; for what savage people, in a climate like England, could possibly afford to erect such a structure as Abury, with its long serpentine lines, or Silbury Hill, or Stonehenge? Or what savage people could have the mechanical skill and resources to drag these immense blocks into position, and then erect them, elevating them, in the case of Stonehenge, fourteen feet clear of the ground? In like manner, if we estimate the number and magnitude of the Danish monuments, even leaving out of account the number that must have been destroyed or rendered indistinguishable in the course of ages, we shall see that no such assemblage of erections has ever been known to be produced by savages, or to be within their competence or wants, least of all in a climate where men must *toil* if they would live at all, and where many must be very rich if vast numbers can be withdrawn from productive industry to public and unremunerative labour, and at a period also when time and numbers had to make up for the wants of the mechanical appliances which economize labour in ages of advanced knowledge.

In fact, and speaking, of course, only from the sources of information which have been accessible to ourselves, it would be impossible to write the early history of the cromlech, stone circle, or mound from the materials furnished by Scandinavian and North German archæology, and still less from those furnished by any more distant region, India by no means excepted. But, in the sphere embraced by the British Islands and North-western France, we find every variety of these structures, from the rudest to the most advanced, from Kit's Cotty House, or Trevethy Stone, or Plas Newydd, or Wayland Smith, &c., &c., up to Abury, and Stonehenge, and Carnac, and Silbury Hill, and New Grange. Nowhere else is such a variety of archaic forms, on a gigantic scale, presented to our notice. Worsaae does not allude, in Denmark, to cromlechs independent of mounds and circles, or of circles, of the kind in question, independent of cromlechs and mounds. There, the word cromlech embraces the three elements, and the cromlech itself is mostly of a circular or oval form, having four, five, or more supports, with a circular cover stone, and being altogether of a less rude type than the quadrilateral structures of this country. And, in the passage mounds, of course, where the cromlech develops into a comparatively

large chamber, the departure from the primitive simplicity is still more marked.

However, we merely wish to allude to these facts, not to discuss them. There is one case at least in which a very primitive style turns up at a great distance, assuming that the description given is sufficiently accurate—we mean the great circle at Darab in Persia, noticed by Sir William Ouseley¹; and it is not unlikely that some very primitive works may exist in Tunis and Algeria, and, if so, their study will have great interest; but all the other descriptions we have yet met with of monuments of the Druidic type, out of the region of the British Isles and North-western France, show marked departures from the cruder forms, and these deviations, while unmistakably recognising those earlier forms, yet modify them in a manner which implies a progress. Thus Barrow² describes a very perfect cromlech which he met with in Portugal, near Monte Maro, on the road to Aroyolos, as *circular* and consisting of “stones immensely large and heavy at the bottom which, towards the top, become thinner and thinner, having been fashioned by the hand of art to something of the shape of scallop-shells. These were surmounted by a very large flat stone which slanted down towards the south, where there was a door. Three or four individuals might have taken shelter within the interior, in which was growing a small thorn-tree.” Here we are reminded of Danish rather than British works, only that there is neither mound nor circle.

In the only case in which we have seen the Indian monuments of this kind figured their derivative character is obvious. This is especially the case with a cromlech at Pulicondah in the Carnatic, on the road between Madras and Bangalore, described and figured in the Journal of the Literary Society of Madras for March 1846, in an article by Captain Congreve, which description is repeated by M. E. Biot, in an interesting communication in the nineteenth volume of the *Mémoires de la Société des Antiquaires de France*. This cromlech is circular, supported on five stones, like so many in Denmark, and is placed on a mound and surrounded by a double circle of large stones, not tall and erect, as in North-western Europe, but rather irregularly globular, and in some cases looking as if partially shaped by art. The cromlech is large enough to allow five or six persons to sit down in it easily. Many similar works are spoken of as having been met with on the Neilgherry Hills, and two especially are said to be identical in form with the one here described. Various other parallel structures

¹ *Travels in the East*, vol. ii., pp. 122—5.

² *The Bible in Spain*, vol. i., cap. vii., p. 119, 12mo, 1843.

are spoken of in the memoir of M. Biot, most of them still less primitive in their character. But there is comparatively little yet known of these Indian monuments, though their structural connection with those of Western Europe cannot fail to invest them, ere long, with a very high interest.

We have singled out the cromlech from many other classes of monuments which demand a different kind of study from that generally bestowed on them, and we have done so, partly because it is the next topic in order after the *kyökenmöddings* and lake-dwellings, and partly because we view it as likely to disclose, when more fully studied, a startling and important history. But at any rate there is but one rational mode of investigating such monuments; and that is the purely scientific mode, in the sense in which the geologist has practically illustrated it.

The work of Sir John Lubbock is mainly concerned with the earlier times of man, and therefore it does conform to this method, not only when speaking within palæontological limits, but in a great measure when touching on far later times, though here it is more difficult, even for trained minds, to escape altogether from the influence of prevailing opinions and forms of discussion. We everywhere recognise the calmness and caution of the scientific man, while every topic is handled in the fairest and most conscientious spirit. Indeed, in these respects, the work is wholly unexceptionable. It is also in the highest degree interesting as a collection of materials, though the fact of its mainly consisting of detached papers, previously published, deprives it of the unity and arrangement which an original treatise would doubtless have assumed. To those who are mainly in search of materials, this deficiency will hardly be perceptible, but it will necessarily diminish the satisfaction of the general reader who may be looking out for a clear and vivid picture of the aggregate evidence. However, we must be thankful, and take what we can get on a subject like this; and certainly Sir John Lubbock has here given us a very large mass of very valuable materials, liberally illustrated, and got together with all requisite pains and diligence, and obviously with every care to attain scrupulous accuracy.

Sir John adopts the now usually received division of pre-historic archaeology into four great epochs: a first and second stone age, a bronze age, and an iron age—a division not yet universally adopted, but most fully warranted, it appears to us, by a careful comparison of the evidences. He thus distinguishes these four ages:—

“ From the careful study of the remains which have come down to

"us, it would appear that pre-historic archaeology may be divided into four great epochs.

"Firstly, that of the Drift; when man shared the possession of Europe with the Mammoth, the Cave-bear, the Woolly-haired Rhinoceros, and other extinct animals. This we may call the 'Palæolithic' period.

"Secondly, the later or polished stone age; a period characterized by beautiful weapons and instruments made of flint and other kinds of stone; in which, however, we find no trace of the knowledge of any metal, excepting gold, which seems to have been sometimes used for ornaments. This we may call the 'Neolithic' period.

"Thirdly, the bronze age, in which bronze was used for arms and cutting instruments of all kinds.

"Fourthly, the iron age, in which that metal had superseded bronze for arms, axes, knives, etc.; bronze, however, still being in common use for ornaments, and frequently also for the *handles* of swords and other arms, but never for the blades. Stone weapons, however, of many kinds were still in use during the age of bronze, and even during that of iron. So that the mere presence of a few stone implements is not in itself sufficient evidence that any 'find' belongs to the stone age.

"In order to prevent misapprehension, it may be well to state, at once, that, for the present, I only apply this classification to Europe, though in all probability it might be extended also to the neighbouring parts of Asia and Africa. As regards other civilized countries, China and Japan for instance, we as yet know nothing of their pre-historic archaeology. It is evident, also, that some nations, such as the Fuegians, Andamaners, &c., are even now only in an age of stone.

"But, even in this limited sense, the above classification has not met with general acceptance. There are still some archaeologists who believe that the arms and implements of stone, bronze, and iron were used contemporaneously," pp. 2, 3.

The work enters at length into this controversy, devoting the first two chapters to the bronze age, and pointing out the prominent features which distinguish its remains from those of the stone and iron ages; and, while accepting in the main the divisions established by the northern antiquarians, based on their own monuments, the author considers their generalization as too absolute, and as requiring modification in the present state of our knowledge.

There is one reason, however, for the differences of opinion prevailing on this subject which has not yet received all the attention

it merits. In the North the monuments of the three ages—the stone, the bronze, and the iron—are very sharply defined. In the British Isles and France they are flung, as it were, at random; and nothing but a most careful, critical, and ample study, on the scientific basis already alluded to, could well suggest this triple division, while the inquiry was limited to this particular region; and such a study these monuments have not yet received. Now, however, that light has been thrown on them by the Scandinavian remains, it is easy to see that we have our three eras here also; but, if, even in Scandinavia, there are facts which suggest the necessity of great caution in our generalizations, it is not to be wondered at that British antiquarians should find reasons for entire scepticism as regards this theory. Still it must not be forgotten that this scepticism has not been suggested by the facts themselves, but by the bias received from the pre-existing state of opinion. Our historical theories have disinclined us to accept the inferences naturally suggested by the monuments, and we have too readily adopted interpretations consistent with our foregone conclusions.

But a still more important element in this discussion is that of the essential and primary destination of the cromlech and cromlech mound. Are these structures essentially and primarily sepulchral, or are they religious monuments ultimately used for sepulchral purposes? Various other kinds of mounds are obviously sepulchral—those of the bronze and iron ages, for instance, and a large number of the mounds of the Mississippi Valley, Eastern Europe and Eastern Asia, &c. &c.—but are the particular mounds in question such? The theory that the cromlech was an altar is now entirely and very properly abandoned, but has not the sepulchral theory also been accepted too hastily? The mere fact of finding interments in a particular class of monuments, even were they found universally, which, in this case, they are far from being, would not in the least prove that such monuments were originally meant to be sepulchres, for we find interments very generally in Christian churches, which were certainly not built for this purpose. In the absence of history, the destination of a structure can only be inferred from its formation; nor could even a history be reliable if it greatly contradicted the evidences of construction. Now it can hardly be denied that, in this case, there are many circumstances which not only could not have suggested the sepulchral history, but which do not at all harmonize with it, while there are a variety of facts which become at once intelligible if we regard these monuments as religious structures.

It may not be easy to determine the form of religion which these monuments imply, especially if we view them isolatedly; but, viewing

them in the light of general archæology, it is by no means impossible to see our way to many safe deductions.

One of the oldest symbols of divinity is fire, and in many important and most ancient religions the maintenance of a perpetual fire was an essential institution. If we view the cromlech as a shrine for this sacred fire, we seem to have at once an answer for many difficulties. Thus, for instance, we see why structures so imposing, and which, in many cases, must have been works of immense labour, were erected at a time when we can neither trace nor presume the existence of parallel labour in other directions, whether public or private. Wherever we have accurate information, we see that the great works of every era and country are religious or defensive, and that sepulchral monuments rarely, if ever, assume proportions in any way approaching to those of the religious erections of their time and place; for it is not to be expected that any people will do more for the memory of dead kings or heroes than they will for the worship of the living gods to whom they look up for every blessing. It is, therefore, incongruous with all our *certain* knowledge that such vast labours should be devoted to mere tombs in an age when the dwellings of the proudest chiefs, and, in this case also, the temples of the most venerated gods, were of too frail a character to leave a vestige of their existence to remote times.

As sacred shrines, and the equivalents of the temples of later days, the character of these monuments is quite natural. Erected in an age of stone axes and hammers, they are necessarily rude. Meant to endure for centuries, they are composed of vast blocks firmly set up, and often poised with great skill and ingenuity, while their smoother surfaces are always turned inwards, a point which would be of far too little consequence to be so universal as it is had these monuments been intended to be filled up with earth, buried under a mound, and never disturbed.

As to location, these monuments are placed on commanding *eminences* or extensive plains, where, as in the case of the Teocallis of Mexico, the ceremonies of religion could be witnessed by thousands of worshippers. We often find them, in these circumstances, with no vestige of a mound connected with them, and not unfrequently in cases where it cannot be imagined, with any show of reason, that a mound could ever have existed—as, for instance, in the case of the cromlech which stood in the great work at Abury, within one of the two inner circles. In many of these structures no vestige of interment has ever been detected, as far as is known. Even when placed on mounds, they are often entirely exposed and entirely empty, except when soil has

partially accumulated, or sand has been driven in by the wind, as has been distinctly stated of so many of these works in India. On this view, also, it is natural to find in so many cases permanent passages leading to these chambers; and still more characteristic are the evidences furnished of the long-continued action of fire on the floors of many of them, so much so that this fact has entered into the general description which Worsaae gives of the superposed cromlechs of Denmark. "The floor of the chamber itself is paved partly with flat stones, partly with a number of small flints, which appear to have been exposed to a very powerful heat."¹

In this view also the connection of the cromlech, first with the stone circle, and subsequently with the mound, is quite natural. Both are well-known religious symbols. The circle represents the zodiac or solar course, the universe, &c., &c.; the mound is the type of the sacred *mountain* which plays such an important part in many mythologies, as the residence of the gods and the final resting-place of deified heroes. And thus at last the conjunction of the three symbols gives us the prototype of some of the most imposing structures of India.

In this train of associations, too, we seem to see the early stages of the cavern worship which in India and Egypt produced so many remarkable monuments. The cromlech becomes partially covered in; it becomes a cave; there is a passage leading to it up the mound. Finally, it is placed on the floor of the mound, and the mound itself assumes imposing dimensions. The sacred fire would now be placed in this sanctuary, accessible only to the priests, the general worship being conducted on the summit of the mound, where sacrifices might be offered up, and victims slain in the presence of the crowds spread over the surrounding plain. A little wooden chapel on the summit of Silbury Hill, or the mound of New Grange, would at once convert these structures into Teocallis, on which the priests of *Huitzilipochtli* might have slaughtered their human victims, or kindled the sacred fire at the commencement of a new age.

In nearly all the great centres of religion there has been a tendency to bury the dead in sacred places, in the vicinity of temples, and often within them. In many cases we find that the temple of a god was also supposed to contain his tomb, and in numerous instances, when kings were the presumed descendants of gods, the traditions of mythology became practical institutions, and mound-burial, among other

¹ *Primæval Antiquities*, p. 80.

things, was the usage for distinguished personages. This custom fixed, nothing would be more natural than to bury important chiefs in the cromlech mounds, still traditionally sacred, even when belonging to a long-perished creed. Then the passages would be closed up, if the cromlech was on or within a mound, and, if otherwise, a mound would be thrown over it, and this, of course, would be without a passage.

On this view we can see how the pyramids of Egypt, originally terraced or graded structures, in many cases all but identical with the Teocallis of Mexico and Central America, would have a king buried in their inner chamber, and then have their terraces or grades filled up with masonry or bricks, as we now see them, and be thenceforth not the abandoned temples of a perished creed, but the tombs of a series of kings.

In this view also the monuments of Western Europe are brought into far more intimate and important connection with the general stream of ancient thought than they can be brought on the received theory. Nor is there anything surprising, on this principle, in our occasionally finding in such works interments of widely different eras, even when such interments are plainly the original ones. But the great fact which would stand forth luminously, upon this hypothesis, is that, however old might be the interments, the monuments themselves were vastly older still; and a fact like this is well worth the trouble of being carefully tested: for, should such a state of things turn out to be true, the face of remote antiquity would be changed, and we should see Western Europe, even in the stone age, anticipating the pre-eminence which it is again assuming in these later times. We should, perhaps, see these islands of ours, a great seat of dominion, trafficking in the Mediterranean, erecting temples or shrines in Portugal, in Italy, in Palestine, in Persia, carrying their arms and their creeds into the Baltic, and finally planting an empire even in Southern India. We do not, of course, say that these things were really so, but we do say that there are numerous and startling hints of some such events, and that the entire subject demands a most careful study.

We have been led farther by this topic than we intended. We meant to have more confined our remarks to the volume before us, though, perhaps, in the case of a work which is essentially one of materials rather than of opinions, we should have failed within our limits to give a just idea of it. The reader must consult for himself in a case like this. He will find a full and fair account of the entire range of facts and current opinions connected with the early remains of man as discovered in the drift, in the *kjökkenmöddings*, in peat-bogs, in lake-habitations, in mound burials, &c., &c. There are two

chapters on the Brazen Age, one on the use of stone in ancient times, and then follow successively Tumuli, Lake-habitations, Danish Kjökkenmøddings or shell-mounds, North American Archæology and Cave men, to each of which topics a special chapter is devoted. After this come two chapters on the Antiquity of Man, three on Modern Savages, and finally one devoted to a concluding survey and its inferences.

These chapters on savages will be found full of interest; and it is a strictly scientific process to study the present so as to make it throw light upon the past. This process is one of the keys of geology, and we must make it one in archæology also. Our author has by no means wasted his time, or that of his readers, in thus giving a *résumé* of the peculiar facts which the savage state at present exhibits. Many of these facts may be familiar to some of us, but there are few who have read so extensively as to be able to turn over these chapters without deriving from them much instruction. Our limits will not permit the consideration of such specialities of opinion as Sir John Lubbock has here advanced or favoured; but one thing, at all events, we can say for the book—viz., that, whether we agree with it or not, no one can possibly quarrel with it, for a more conscientious and unassuming work it would not be easy to meet with.

ANTHROPOLOGY AND THE BRITISH ASSOCIATION.

THE current number of the *Anthropological Review* has an article devoted to the "Prospects of Anthropological Science at the British Association of 1865." It urges the standard claim of the Anthropological Society of London to have anthropology recognised in the Association by a distinct section, not only on the ground of its being an important science, but also on that of its being as yet unrecognised in that body, this second position being based on the theory that Ethnology, which is recognised, is not the same science as Anthropology, but a wholly subordinate one, a mere department of anthropology.

Had the purely scientific aspect of the question been adhered to in this paper, we should have had nothing to do but simply to refer to the article in our last month's issue, in which the entire subject is discussed in detail; but the writer has chosen to attribute unworthy motives to the opposition made to the claims in question, and we are compelled to allude to the

subject lest our silence might be claimed as a recognition of the justice of such charges.

The writer talks of the "ungenerous motives of a faction in the Ethnological Society." To those who really know that society, and the character of its proceedings, such a charge will be simply ridiculous. Baseless in itself, it is introduced without a particle of evidence, and is directed against men utterly beyond the littleness which it implies, to say nothing of its more serious aspects. If members of the Ethnological Society have opposed the claims in question, they have done so on the same grounds that other scientific men have opposed them; or, if there be any thing special in their opposition, it has been based on the conviction that Ethnology and Anthropology are not two sciences, as certain anthropologists wish to make out, but one and the same science under two distinct names. Not a shadow of evidence is adduced to show that their asserted belief is not perfectly conscientious, and yet the writer does not hesitate to attribute their opposition to unworthy motives; and this gratuitous charge he calls "lifting the veil"! And it is so, indeed, but not in the sense intended.

"The real motive," he further adds, of the opposition of ethnologists, "is simply jealousy of the increasing popularity of our science and number of our adherents." To make charges which cannot be proved, and which can only be met by simple denial, is a mode of argument which may suit certain orders of mind; but we should have fancied that, in a case which is assumed to be so strong, an effort would have been made for some better argument than simple abuse and mere assertion.

No doubt ethnologists, like other people, look with some curiosity at the rapid growth of the new society and make their comments thereon. This growth is altogether a phenomenon. We see nothing like it in any other scientific body in the country. But the reason is obvious: the laws of this growth are special, and such as our other scientific societies have not adopted, nor are likely to adopt. Rather than grow on these terms the Ethnological Society would infinitely prefer to dissolve at once.

"On no scientific grounds can ethnologists continue their opposition." Such is another of these confident statements; but this one fortunately does admit of something more than denial; and a full answer to it was before the public in our last number, simultaneously with the charge itself. The burden of defence now rests on those who have ventured to make so rash an assertion.

We shall not follow the writer in his eloquent peroration—in his hope that, "in the name of honesty and the common love of truth which scientific men profess," ethnologists will not "resort to a fresh series of

petty tricks to gain their end," &c., &c. We will merely add that, even if such charges could be proved true, their introduction into a scientific controversy would be wholly unbecoming. To make them upon purely gratuitous surmises is a fault which we must leave others to characterize.

PROCEEDINGS OF THE ETHNOLOGICAL SOCIETY.

At the meeting of the 27th of June, John Crawford, Esq., President, in the chair, the paper read, as mentioned in our last issue, was a "Report on the Indian Tribes of the North-west Coast of America, in the Vicinity of the 49th Parallel of North Latitude," by Captain Wilson. It was a long, elaborate, and very interesting communication, of which there was only time to read selected portions; but it will doubtless appear in full in the next volume of the Society's Transactions. It relates to the Indian tribes with which the Boundary Commission was chiefly brought into contact during the course of its operations on the 49th parallel; and these tribes are classed under the three great heads of Cowitchan, Selish, and Kootenay—the Cowitchans being on the west of the Cascade Mountains, the Selish between the Cascade and Rocky Mountains, and the Kootenay on the western slope of the Rocky Mountains.

The traditions, legends, and habits of the Selish and Kootenay, or interior Indians, would lead to the belief that they are of the same race as the great tribes of Crees, Blackfeet, Crows, Sioux, &c., and a gradual westerly movement of the Indian tribes would naturally take place as the advance of the whites drove them from the seaboard. The range of the Cascade Mountains forms as marked a division of the native tribes of the West as it does of the fauna and climate. Besides differences of feature, there are many customs amongst the coast tribes peculiar to themselves, such as the flattening of the head amongst the Cowitchans, the mode of burial of the dead in boxes or canoes, &c.

The Cowitchans inhabit a portion of the east and south-east coasts of Vancouver's Island, and the country in the vicinity of the 49th parallel of north latitude, from the sea to the Cascade Mountains. Of the numerous tribes into which they are divided, the Cowitchans, or parent stock, living on the Cowitchan river, some distance to the north of Victoria, are the most powerful, their numbers being estimated at over 2000.

These tribes resemble each other greatly in appearance and habits, such differences as exist being principally due, the writer thinks, to locality and the means by which they obtain their living. Thus the Indians of

Chilukweyuk, who hunt a great deal on foot, are, from constant exercise, much more robust in appearance, manly and open-hearted in manner, than their brethren of Vancouver's Island. The custom of flattening the head prevails amongst the tribes on the island, and as far up the Fraser River as Fort Langley; but, above this, the writer does not remember seeing an Indian with a flattened skull, or an infant undergoing the process—a common sight in the neighbourhood of Esquimalt and Victoria.

The stature of the Cowitchans is diminutive, ranging from five feet to five feet six, and occasionally to five feet seven or five feet eight inches. Amongst the more inland tribes the women are five or six inches shorter. The hair is black or very dark brown, coarse, straight, and allowed to grow to its full length, either falling in one large mass over the neck and shoulders, or plaited and done up in tresses round the head. The faces of both sexes are generally broad, the forehead low, the eyes black, bright, and piercing, though generally small, and set in the head obliquely, like the Tartar or Chinese; the nose broad and thick, with large nostrils; the cheek bones high and prominent; the mouth large and wide, with thick lips, especially the under one; and the teeth large and of a pearly white when young, but soon discoloured and worn down by the hard service they have to go through, masticating the tough dry salmon which constitutes their principal food. Indeed, so much is this the case, that most of the old women met with had their teeth worn down to a level with the gum. The Vancouver Island tribes have broad shoulders and good chests, but the lower part of their bodies is much deformed, the legs being small, crooked, and weak, with thick ankles, arising from their spending the greater part of their lives squatting on their calves in a canoe, which is the favourite, and indeed almost the only means of locomotion made use of by these Indians. The women increase this deformity by binding tight bandages round the lower part of the leg. The Chilukweyuks are, however, an exception to this, having straight, well-formed legs, the result of their more active life. The complexion, when washed, is a dark olive, the colour of the face being deepened by exposure to a dark brown.

The intellect of the Cowitchans is of a low order, but they show great ingenuity in the manufacture of their nets, canoes, &c. Whether from fear or inclination, they were always honest in their dealings with the members of the Commission; and, though scattered in small parties over a large tract of country, presenting every opportunity for it, no case of theft by an Indian occurred during the eighteen months spent amongst them.

The religion of these Indians, and their ideas about it, are now so confused and mixed up with the Christian doctrines and traditions they have learned from the Roman Catholic priests that it is very difficult to find

out anything reliable about it. They appear to have had some vague idea of a great spirit, represented on the tombs as a large bird having some fantastic resemblance to an eagle, to whom they made offerings, and who showed his displeasure by thunder, storms, and lightning; and also that the good would go to some place where they would find plenty of game and spend their days in comfort, whilst the bad would suffer from hunger and the chilling blasts of winter. They are firm believers in ghosts, spirits, omens, &c., and are fond of relating fables and stories. Each tribe has its "Tomanoas," doctor, priest, juggler, or whatever he may be, who is believed to have great powers, including that of producing rain.

The Selish race inhabit the country between the Cascade and Rocky Mountains, in the vicinity, and to the north and south of the 49th parallel of north latitude, with the exception of that portion watered by the Kootenay river. The various tribes appeared to be offshoots of one parent stock, and resemble each other greatly in appearance, manners, and customs. The Selish and Kalispelms, however, have the highest character for bravery and all the virtues of savage life.

The average height of the men is about five feet six or five feet seven inches, few exceeding the latter height; and the women are about six inches shorter. The hair is black or dark brown, coarse, straight, and grows to an extraordinary length. The face is oval; forehead higher than amongst the coast tribes. Eyes black and bright; nose frequently aquiline amongst the men, but broad and thick in the women; cheek bones high and prominent; mouth large, with thick lips, and the teeth large and good. The senses of sight and hearing are highly developed. These people are well made, active, and capable of great endurance. The complexion is rather lighter than that of the Cowitchan. The men change little with age, but the women age early and rapidly. The intellect, though of no very high order, is decidedly superior to that of the coast tribes.

Like all other Indians, the Selish are inveterate gamblers; they are, however, brave, honest, polite, unobtrusive, and dutiful to their parents. No difficulty or disturbance arose during the eighteen months the Commission spent amongst them, and parties of two or three used to travel about with perfect safety; yet many of these were the same tribes which had given the Americans so much trouble in the years 1857—58.

The language is not near so guttural as the Cowitchan, and is much more readily picked up by a stranger. As far as could be learnt, there was little or no grammatical construction.

There are a great many very curious and pretty legends among the

Selish, in all of which the "Coyati," or small prairie wolf, is the most conspicuous figure. One tradition is that the present sun is only a portion of an old one which existed years before any man lived, and was broken in some mysterious way by the little Wolf.

The Kootenays inhabit the country watered by the Kootenay, Flatbow, or, as it is sometimes called, McGillivray's River, and are divided into two tribes, the "Akishkinookanika," or Upper Kootenays, living immediately at the base of the Rocky Mountains, in that part of the country commonly known as the Tobacco Plains, numbering about 450; and the "Akuchöklacktas," or Lower Kootenays, scattered over the country from the southernmost point of the great bend of the Kootenay near Cheleempta, northwards to the Kootenay Lakes, and numbering about 200, making a total of 650.

From the shortness of time spent in the Kootenay country, but few particulars could be learnt about this very interesting tribe, which, speaking a widely different language, and walled in by high ranges of mountains, is entirely isolated, and has had far less intercourse with the whites than any of the surrounding tribes.

The Kootenays were decidedly the finest race of Indians met with during the progress of the Commission: the men were tall, averaging five feet nine inches, with sharp features, aquiline noses, black hair and eyes, and very long black eyelashes, which form one of the most striking peculiarities in their appearance. They bear the reputation of being brave, honest, and truthful, and pride themselves on the fact that no white man has ever been killed by one of their tribe. Though naturally quiet and inoffensive, when occasion demands they show themselves inferior to none in all warlike accomplishments, and, notwithstanding the small number of their tribe, manage to hold their own against the Blackfeet in the frequent skirmishes which take place on the common hunting-ground.

The chiefs are much respected, and have great authority amongst their own particular portion of the tribe. The lodges, canoes, arms, &c., as well as the habits, customs, and general mode of life, are the same as those of the Selish; and what has been said of the latter in these respects may be equally applied to the Kootenays. The "Little Wolf" also occupies the same prominent position in their legends.

July 4th, JOHN CRAWFURD, Esq., President, in the chair.

The paper of the evening was by Dr. Donovan, "On Craniology and Phrenology in relation to Ethnology." The aim of the writer was to insist on the importance of the subject, to invite discussion, to place in a clear light the fundamental facts and deductions of the science, and

answer some of the more prominent objections of those who are opposed to its claims; and in these respects the paper fulfilled its objects very satisfactorily. It commented on the labours of the modern school of craniologists, insisting on the futility of such inquiries when not conjoined with the study of cerebral functions, and expressing astonishment that such minute attention should be bestowed on the mere casket which enclosed the treasure, while that alone which could possibly give it value was so greatly neglected. The writer also availed himself of some testimonies to the reasonableness of the fundamental principles of phrenology given by eminent men, who, he contended, could have had no undue bias in favour of a doctrine which they refused to accept as a whole, and particularly instanced Hugh Miller, from whom he gave a very interesting quotation, and Dr. Whately, the late Archbishop of Dublin.

The chairman, in inviting discussion on the paper, expressed his entire dissent from the doctrines of phrenology, commenting on the impossibility of tracing in the brain any divisions equivalent to the phrenological organs, and the further impossibility of detecting the precise shape of the brain through its various coverings.

Mr. Wallace, on being called on by the chairman, stated his disappointment that the paper had scarcely touched the ethnological bearings of phrenology, the point of main interest to the Society. At the same time he declared his own conviction, based on careful thought and observation, that the main doctrines of phrenology were thoroughly sound, though he was by no means prepared to go the lengths of its special supporters.

Mr. Hodgson, in an address of great earnestness, reviewed the objections raised by the previous speakers, exhibiting a complete familiarity with the subject, and giving a very able and eloquent exposition and defence of its doctrines.

Mr. Dunn, on being appealed to by Dr. Donovan, also emphatically declared himself in favour of the science, on the basis of the pathological facts observed by himself and recorded by others, as well as upon those of developmental anatomy, both comparative and human, and quite irrespective of the numerous cranioscopical observations of Gall, Spurzheim, Combe, and Carus.

After some remarks by Dr. Wild, who gave a case illustrative of the practical value of phrenology, some controversy arose as to the further continuance of the discussion, the chairman deciding on its termination, as the Council had promised a short space of time to a paper by Professor Bell, on what he termed *Visible Speech*.

Professor Bell, in a brief address, called attention to his discovery of a *Universal Alphabet*, by means of which may be expressed all the possible modifications of articulate sound; and, startling as the statement must seem, there can be no doubt that the method adopted works in the right direction for realizing the end in view, even if it should in any way fail to attain it.

The system is at present a secret; for, as the nature of the case does not admit of any patent rights in such an invention, the discoverer wishes it to be taken up by the Government. The descriptions given are therefore purposely restricted; but, to make up for this, every kind of practical test is eagerly offered. On the present occasion various difficult words were repeated to Mr. Bell, who wrote them down, and then handed the writing to his sons, who in the meantime had left the room, to be out of hearing, and who were now recalled. They certainly pronounced them astonishingly well, all things considered; they did not always succeed at first in the more difficult cases, but, on being told of their failure, they reached the true sounds after one or two trials, and this purely from the written character.

In fact the discoverer seems to us to have attempted even more than is needed. What is wanted is simply to be able to express all the genuine sounds of a language. We do not see why an educated speaker must needs imitate all the additional harshnesses of a boor or a savage; yet this seemed to us to be in the programme, and the feat really looks as if it were at all events theoretically possible—as if the system admitted of it, should any one be able to draw out all its powers.

The characters *represent* to the eye the positions of the organism in vocal utterance, and admit of being modified as these positions vary. The idea of the system is therefore thoroughly sound, and the question is simply a practical one. We learn, too, that the fundamental characters are only *thirty-four* in number, which is certainly as near an approach to simplicity as the nature of the case seems at all to permit. Altogether the matter evidently deserves careful consideration, and can scarcely fail of ultimately eventuating in success; and therefore it should, if possible, be made to succeed at once, so that the discoverer may have the satisfaction of witnessing the triumph of his long labours, as well as of receiving some material advantage from them.

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THE
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SEPTEMBER, 1865.

THE PLACE OF MAN IN THE ANIMATE SCALE.

(Continued from page 71.)

§ VI. FUNCTIONAL EVIDENCES OF THE GREAT STRUCTURAL SUPERIORITY AND COMPLEXITY OF THE HUMAN AS COMPARED WITH THE SIMIAL BRAIN.

WE have examined in the foregoing section the position assumed by Professor Huxley, that an immense gulf in function does not necessarily imply an equivalent gulf in structure, and shown that the illustration offered in proof of this assertion entirely fails in its object, and does not at all touch the point really at issue. It shows us how slight alterations in a mechanism may impair or destroy, but it does not at all show us how such changes can produce a vast *improvement*. This question of organic improvement is of supreme importance in the case under consideration; and I shall now bring some additional evidence to bear upon it.

Functional improvement may consist either in an increase of power or facility of use in existing functions, or in the superaddition of new ones. An increase of power may be given in several ways: we may intensify the external force which acts on the organ, or diminish friction, or otherwise remove impediments; or we may enlarge the capacity of the organ, or so alter it as to allow the motive force to act more efficiently than before. Three of these means, however, may be at once excluded as bearing alike on the two organisms compared. The motive force in the case of an animate structure is external nature—air, water, food, heat, light, and other external influences. These are virtually the same for man and the ape, or, if there be any difference in favour of man, that difference is one of his own creation, and therefore presupposes his inherent superiority. Originally, man must have stood as naked and defenceless as the ape, as

regards external nature; and even as matters now stand he enjoys no real advantage, as far as this argument is concerned, unless it be true that the physical condition of the ape is unsuitable to its nature; a position, we presume, which no naturalist will venture to take, and certainly one which no naturalist would be able to establish. As to impediments to due action, they are, of the two, less likely to exist in the case of the unfettered ape than in that of man, subject to a thousand restraints created by his superior powers and duties. And as to mechanistic efficiency, we have no reason for inferring that Nature is less skilful in the case of one animal type than in that of another, but, on the contrary, every reason for believing that all her normal formations are perfect in their kind.

These conditions, then, being excluded, if we wish to obtain an increase of power in one of two like organs or organisms, we can only do so by an equivalent increase in size, and this does not come within the category of great functional increase produced by slight organic changes. If the human brain differed from that of the ape in power only, and not in kind, in functional force, and not in functional diversity, then man could only have double the mental power of the ape by having a brain twice the size of a simial brain, and to have fifty times the mental power he must have a brain fifty times the size. Now it is quite clear that no such disproportions in volume of brain exist between these two animals; while it is equally clear that the disproportions in mental power are far greater than this, even in Professor Huxley's own view of the matter. It is plain, then, that we have to consider something more than functional and organic volume in the case of these two animals.

There are, however, a set of cases which, hastily viewed, do seem to countenance the statement of Professor Huxley. But the illusion vanishes when we examine them carefully and in detail. Two guns may be made to the same size and pattern to all appearance, and yet, with the same charge of powder, one shall only carry half the distance of the other. But then a moment's consideration will make it evident that the one gun, as compared with the other, is in some respect badly made. It offers *impediments* of some sort to the action of the ball or to that of the charge. It brings us, therefore, into the category of impedimental causation; and the inferiority of its structure is practically equivalent to injury and abnormality, and implies want of skill or care on the part of the constructor; and if the difference in efficiency amounts to a *gulf*, the inferior piece must be a very bungling affair indeed. Nature, assuredly, shows no such bungling as this in her typical workings. Accident may mar her design in the case of the individual; we may talk of an abnormal plant or animal, but no one talks, or rationally can talk, of abnormal species, genera,

classes, or kingdoms. The worker that could reach perfection in the case of man could not be a bungler in that of the ape.

On the other hand, if we have two guns similar in size, perfect in make, and yet differing immensely in efficiency, it is clear that one of them must have an order of structure immensely superior to that of the other; for where the motive power is equal, the only other element of causation is structure. However, in the case of an experiment so simple as that here implied, it is plain that we could not by means of structural changes only, and irrespective of increased size and motive force, produce an immense gulf in function between any two pieces; and if we remember that complexity is but the repetition of simplicities, it will be evident that what is *inherently* impossible in a simple case is equally so in a complex one, since if it be impossible in every separate element of an aggregate, it is impossible in the whole. If, then, man differed from the ape in amount only of mental power, and not in kind of power also, it is plain that he could only do this by having a brain immensely larger than that of the ape; but this he plainly has not got. The difference in size between the two brains, though very important in certain aspects, is a mere nothing when compared with the aggregate functional disproportion; and it is plain, therefore, that the case before us is not one of mere volume of mental force, or one of mere size or efficiency in like cerebral structures, but one of new kinds of function, and consequently of new kinds of structure.

The superaddition of a new kind of function necessitates the formation of a distinct organ for its production: if an animal is to see, it must have an optic apparatus; if to hear, an acoustic one; and if it is to have a new internal sense, whether intellectual or emotional, it must equally have a special organ for its production. The number of primitive powers possessed by an animal is, therefore, the number of its distinct organs; and if those powers be capable of distinct subdivision or modification, their organs must have a parallel subdivision. If a watch is not only to tell the time, but also to strike the hours, it must have a superadded contrivance to enable it to discharge this new function; and every additional function which we require of it necessitates the formation of an additional contrivance: nor can one of these contrivances do the work of another; each is precisely fitted for its own work, and from that very fact is disqualified from doing any other kind of work. These are the necessities of mechanism—of all mechanism, no matter what its kind or grade; whether vital or non-vital, animate or inanimate, spiritual or material, matters not in the least, for mechanism is but an organised and interacting sequence of causations, and the laws of causation are everywhere one and the same. When, therefore, we give to vital mechanism powers which would be

absurdities in the case of non-vital structures, it is plain that we are dealing with laws which we have but imperfectly comprehended, or with applications of them in which our perceptions are confused. Wherever we do understand vital mechanism, we see that its principles are identical with those which regulate the works of our own hands.

It is clear, then, that no slight modification of a normally efficient structure can greatly enhance its power, and least of all give to it an entirely new power. Nothing short of a new apparatus can do this. If we want our gun to fire north and east at the same moment, we must make and fit a new barrel to it; and if we wish it to fire in fifty directions at once, we must add forty-nine barrels to it: nothing else will do, turn and contrive as we may. No amount of exercise or favour of circumstances will enable it to take aim in two directions at once, nor cause it to develop other barrels from its side; yet naturalists have told us that the living gun can do this. But they have told us so, not by drawing upon their knowledge in a case really understood, but by taxing conjecture to furnish means of escape from a labyrinth of difficulties. The moment we analyze, and separate, and mentally dissect, we see that the living gun is as rigidly circumscribed by formative laws as the heaviest piece of ordnance ever turned out from a national dockyard; nay, circumscribed by the very same laws.

But the matter may be tested in a still more striking manner than this. We will take a gorilla on the one hand, and on the other a man of the same general size and weight. That man may belong to the very highest order of human intelligences: let us assume that he does so. In what does his superiority consist? In aggregate size and weight there is, by hypothesis, an equality: in external conditions—in other words, in the primary motive power—there cannot be any difference worth mentioning. The gorilla is in a climate which perfectly suits him—in his native climate, the climate of his race from immemorial time. He has suitable food, that which he prefers, and which his race has always eaten; he has the best of society, according to his own notions and tastes—that of his brother and sister gorillas, and of his and their little ones; and, finally, he has all the required stimulus of antagonism, whether in the clashing of gorilla interests, or in the interference of more foreign foes. What greater external advantages can man enjoy? If food, climate, society, sympathy, and antagonism are more potent causes in his case, it can only be because the organism on which they act is of a superior kind.

Under these circumstances, then, whence comes the functional superiority of man? Size, weight of metal, and charge being equal, the gun can only be superior in function, in proportion as it is superior in structure.

There is no other element of power in the case. Let us look a little into details.

The bones which support, and the muscles which move these two beings must, in a general way, be equal in size and power; or where there is a structural advantage on either side, in any point, there will be found an equivalent functional difference. So with the nerves which excite these muscles, with the stomach which supplies the nourishment of the structure, with the blood-vessels which distribute this nourishment, with the lungs which perfect it, and with the glands which aid in the processes of formation, purification, or special secretion. In all these respects there is no material difference between the two animals, as far as the present question goes, or if there be, the balance is in favour of the gorilla. He will have more purely physical force, more brute power, than man: man will simply be superior in elegance of form, grace of movement, and refinement of taste.

Where, then, are we to look for that functional superiority which is acknowledged to be so vast? There is certainly no vast gulf in the portions which we have considered: if we are to find it anywhere, it must be in the portion not spoken of, the head. At the first aspect we see a very considerable difference between the two heads. That of man is very much more *individualized*. The forehead, the brows, the nose, the lips, the chin, the ear, and the cheeks have a separateness which strongly distinguishes them from the same parts in the simial head. Now this individualization, or, as it is also termed, specialization, is always, *cæteris paribus*, an infallible sign of organic complexity, and of elevation in rank; so much so that, in the absence of all knowledge of function, we should be justified in pronouncing man a vastly higher animal than the ape from this fact alone, trifling as it may seem to superficial observation. A similar individualization is presented in the hand and foot, organs so important in their relations to the mind. It is presented, in fact, in the entire body; and hence the grace and definiteness of the human form, so superior to that of even the handsomest of beasts, to say nothing of one of the very ugliest. In itself, this distinctness of marking would be a trifling matter; but when we regard it as a consequence and index of internal structural complexity it becomes of high importance, and this is what it actually is.

The head is an epitome of the entire body. It is divided into two portions: the face, which represents the trunk; and the brain, which represents the head itself. In a human structure of high order the head is always larger than the face; in the Simiadae the proportions are always reversed; here again we see the indices of superior rank. But we must look closer than this.

The smallest normal human brain is stated to be twice the size of the largest

simial brain, while only one-half the size of the largest human brain. Thus the largest human brain is four times the size of the largest simial brain, as the smallest human brain is said to be four times the size of the smallest simial. Taking these proportions in the rough, as approximately true, and considering the subtle nature of nervous matter, they imply, to all appearance, a vast superiority in the human brain; and this superiority entails the following important dilemmas:—

In the first place, either the brain is a single organ, and therefore acts as a whole in every mental function, in every perception, desire, emotion, or volition; or it is an aggregate of two or more distinct but closely related organs, each having its own function. If one organ can perform two distinctly different functions, then the brain may be a single organ; but if no organ can do this, then the brain must be composed of as many organs as it has primarily distinct functions.

We will first assume that the brain is a single organ. Then, as man has a brain four times as large as a gorilla, while, by hypothesis, his general size and weight are only equal to that of the gorilla, he ought to be able to throw four times the mental force into all his movements, intellectual, moral, and physical, that the gorilla can, unless his brain be of inferior quality and structure. Clearly he cannot throw four times the physical force into his movements. The gorilla, of the two, is the more powerful animal, and this power it cannot derive from the simple fact of having stronger bones or larger muscles. Apart from the muscles which move them, the bones are but dead weight; apart from the nerves, the muscles are mere flesh; while the voluntary nerves are as powerless as either until the brain flashes its lightnings into them. Unless, then, the brain have power, there is no voluntary power in the body at all, no matter what its size and proportions; and if, therefore, a simial brain can communicate as much momentum to a given mass and weight of living machinery as a human brain can, while yet it is only one-fourth the size of the human brain, it follows inevitably, on the hypothesis that the brain is a single organ, either that the simial brain is four times superior in quality or structure to the human brain, or that the human body is so relatively clumsy in its structure, and offers so many impediments to nervous transmission, that more than three-fourths of the cerebral energy are expended in simply overcoming its *vis inertiae*, and getting it into motion. Now this dilemma is inevitable if the brain be a single organ. In this view it is the monkey who has the higher order of brain, not man. We must go to the gorilla, to the elephant, to the tiger, if we want to know what cerebral quality or structural mobility means—if we want to know what a nervous battery is.

But all this is ridiculous. The human body is not clumsy, the play of its muscles is not slow or ungainly, and the lightnings of mind flash not less vividly or potently in the case of man than they do in that of the gorilla, elephant, or tiger. And if not, then the brain is not a single organ.

Again: if the brain be a single organ, it must enter into action as a whole in all its functions, and must be able to create the same amount of energy, and display the same intensity of results, in one direction as in another, whenever excited to a given degree; consequently the brain of the gorilla, which can produce a power equal to the human in the direction of anger, physical love, fear, combativeness, and various other volitions and emotions, ought to be equally powerful in every other mental direction; equally varied in its perceptions, equally tenacious in its memory, equally clear and powerful in its reasonings, equally lofty in its aspirations. But the very opposite of all this is the fact. In these directions the human brain is not simply superior to the simial, it is incommensurably superior—superior to the extent of a *gulf*, vast and impassable. Again, therefore, it is impossible, in the presence of these facts, that the brain should be a single organ. Were it so, it would be impossible for the animal mind to be a total blank, manifesting no power, capable of no excitement, in cases in which man is intensely excitable, while in others the two orders of mind are equally susceptible and equally powerful. The tigress is as violently excited by danger to her young as the fondest human mother; but yet, let her be satiated with food, and she will lie in her cage unmoved while a living chicken is deliberately pulled to pieces before her eyes, while the human mother will shriek with horror, and would probably swoon outright if it were a human being that was thus tortured. Now contrasts like these would be utter impossibilities were the brain a single organ.

What is true of animals as compared with men is equally true of men as compared with each other. Of two men, one shall have powerful passions, yet a feeble intellect; another shall be exactly the reverse. Of two equally intellectual men, one shall be a phenomenon in poetic fervour and imaginative power, and yet an arithmetical calculation of moderate dimensions shall be sufficient to fill his mind with mingled terror and amazement; while the other, who could sit down with delight to count the number of seconds in a geological epoch, may have a very profound conviction that all poetry and its belongings is mere rubbish and moonshine. Such contrasts would be impossible in the case of a single organ.

An organ, in the sense in which we are now speaking, is a mechanistic structure, exactly, and in all respects, fitted for producing a certain effect,

that effect being the necessary, in other words, the inevitable result of its normal action. Thus the necessary, the inevitable result of the normal action of the organ or organism of vision is the perception of light, that of the organism of hearing the perception of sound, and that of the organism of taste the perception of flavour. If these organisms could interchange functions, or if one of them could alternately perform all three functions, then a result would be necessary and not necessary, inevitable and not inevitable, at one and the same time, and in one and the same sense, which is a contradiction.

We never, therefore, find any simple or single organ performing two unlike functions. Whenever our anatomical knowledge is sufficiently accurate, we invariably see that complexity in the one case implies complexity in the other; and even had we no detailed knowledge at all in the matter, the law of causation is clear and absolute. Only like causes can produce like effects. Every variation in effect, therefore, implies a variation in the causation. If it be only the intensity of the phenomenon which varies, then it is the motive force which has been somehow modified: if the variation be one in kind, then the agent or structure has been modified or is different. But we cannot have the selfsame structure doing fifty different kinds of work, and working as a totality in every one of them. We cannot have like structures in two different animals, and yet have one of these structures doing fifty different kinds of work which the other cannot do at all, though both are equally normal in make and action, equally perfect in their kind, and both acting in all cases as totalities. We cannot have the same loom, fed in the same way, and yet working fifty different patterns. In a word, we cannot have the selfsame cause producing entirely different results; and if not, then the brain is a complex, not a single organ, and its parts can act individually as well as collectively; and two brains may differ greatly in complexity, while each is equally normal and equally efficient in its way. Let us now apply these conclusions to the case before us.

We have a man and an ape, by hypothesis, of the same aggregate size and weight; but the brain of the man is four times as large as the brain of the ape. As no one has asserted, and as we have no reason for supposing, that the intrinsic quality of the simial brain is superior to that of the human brain, whether in material or structure, while there are many and good reasons for supposing the contrary, we will give the ape the benefit of the doubt, and assume that the two brains are in this respect equal.

Under these circumstances, it necessarily follows that the larger brain must have at all points more intense functions and a greater amount of nervous power than the smaller, or that it must have parts which are

altogether wanting or imperfectly developed in the smaller. *De facto*, it has not at all points more intense functions or greater power, while it has functions not manifested by the other at all; and hence it must be superior in structural complexity—like where the functions are like, unlike where the functions differ.

In this view all the cerebral portions of the organs of the external senses ought to be of nearly equal size in both structures; so ought those portions of the brain which give the desire of food, the sexual instinct, the social instinct, the love of young, the emotions of fear, anger, antipathy, the instincts of cunning and caution, and the sense of motion. There is no reason for supposing these powers to be much inferior in the case of the ape than they are in that of man, and therefore there is no reason why their organs should be of inferior size. If, then, so considerable a portion of each brain is equal, or nearly equal, in size, the whole, or nearly the whole, of the disproportion between the two brains must belong to the remaining section. We have taken the brain of the ape as equal in size to one-fourth part of the human brain; and it is plain, from the facts just mentioned, as well as from all our knowledge of the nature of the two animals, that the simial brain must represent the lower fourth of the human brain, speaking approximately; for it is precisely in the lower functions of the mind that the two animals are on an approximate level; and if things be thus, then three-fourths, or nearly three-fourths, of the human brain have either no equivalents at all in the simial brain, or none of any size worth mentioning; and this, of course, means that the very highest faculties of the human mind, and the very highest organs of the human brain, are absolutely wanting in the brain of the ape, or exist there only in an embryotic condition. We see, *de facto*, that such is the case with the functions, and the laws of causation leave no room for rationally doubting that such also must be the case with their organs. There is not a shadow of evidence to show that any portion of the simial brain is, or can be, four times as efficient, in proportion to its size, as the corresponding portion of the human brain, and yet this must be the fact if there are no omitted structures. All analogy would lead to the inference that the human brain is superior in quality, in ultimate texture, to the simial; and yet, if there are no omitted organs in this latter, the very reverse must be the case. But even if we were to admit this extravagant result, we should only fling ourselves on another horn of the dilemma; for, in that case, the question would be, how does it happen that this vastly superior simial brain is utterly incapable of manifesting at all a host of functions which are manifested with great force by the inferior human brain, while this latter does all the work of the simial brain equally well, in addition to a great amount

of other work purely its own? There is no escape from these difficulties, and the more we struggle the deeper we get into them. It is not two horns that this dilemma has; nor two hundred even: it is a very forest of horns. The doctrine in question directly conflicts with the law of causation, and therefore all nature rises up against it.

It is not with the ape only we have here to deal, but with every other animal as well. Why, for instance, is the brain of the fish so small and simple if no organs have been omitted in it? Or why does it not manifest functions which not only man, but various other animals manifest? Why does not the monkey construct as well as the beaver? or why does the beaver construct any more than the otter? If their brains are fundamentally like, if there are no such things as omitted organs, why these differences in function? If the brain be the organ of all conscious sensation, why different sensations if the organ does not differ? and if the organ does differ in order to produce different sensations, why not estimate the amount of difference by the amount of distinctly different sensations?

And, again, why should there not be omitted cerebral organs? The gradual multiplication of distinct organs as we ascend in the scale of being is the universal fact of zoology. No one believes that the lowest of the radiata or of the infusoria have distinct brains, or distinct organs of special sensation, such as eyes, ears, gustatory and olfactory systems. No invertebrate has a perceptible acoustic apparatus, though the insect has some confused sense of sound, and therefore must have some rudiment of such an organism. The perception of musical interval does not commence till we reach the bird, and is quite rudimentary in the beast, if indeed it be not wholly absent. Even among men we often find this perception rudimentary. Persons who have the most delicate appreciation of general sound, who learn languages with great facility, and pronounce them with singular accuracy, are sometimes unable to tell one air from another, except where they are able to do so by the distinctness with which the time and rhythm are marked. If these things can happen in regard to one set of perceptions and organs, why not in regard to others, or to all?

The simial brain does not show any blanks or vacuities; it is as symmetrically packed as the human brain: but this fact cannot in any way militate against the theory of omitted organs. Nature aims at symmetry in all her works. All brains are symmetrically moulded to a greater or less extent, and, even were they all identical in shape, such a fact would not prove their internal uniformity.

Now this question of cerebral packing is a very important one. If a brain may be symmetrical and yet have fewer organs than another symmetrical brain, it is clear that craniotomy must be attended with great

practical difficulties, and may often break down altogether. If a particular organ may be omitted without leaving any perceptible visual evidence of the fact, may it not also be small or large without giving any such evidence? It is quite natural that the organs of the lower instincts should be placed at the base of the brain; that where no higher feelings exist these organs should occupy the whole brain; that where such feelings do exist the brain should enlarge its diameter, the previous organs occupying the lower face and extending laterally, and the new organs being placed in the middle and giving greater elevation to the aggregate mass. All this is in full relation with convenience and analogy; and when, as in the present instance, it is accompanied with a corresponding increase in size, its meaning becomes unequivocal. A brain not only large, but predominantly large in its superior regions, is obviously a superior brain. But all this may be true without giving us the means of so minutely discriminating between brain and brain as to be able to say, *d priori*, that a particular faculty or organ is given or withheld. If an organ of destructiveness takes one arrangement in the brain of a gorilla, and another in the brain of man, while equally large in both, must it not do the same in two differently moulded human heads? and if such plasticity exists, as obviously it does, may not an individual large or small organ so conform to it as to present no evidence of its special development on the surface of the brain, and still less on that of the skull?

Where two brains are of the same type, an individual organ, large in the one and small in the other, may naturally be expected to give some evidence of this difference in the form or size of some particular convolution or part of a convolution; but, in proportion as the type varies, the *d priori* likelihood diminishes. Hence it is necessary to study each type specially; and if this be necessary in the case of the animal brain, it must be equally so in that of the human brain; for it may be questioned whether there are not more diversities of form in this single type of brain than in all other mammalian brains put together; a fact due to its vastly greater complexity, and to the wide range of duties created by its exalted powers.

If all this be true, then it must follow that, even assuming the doctrines of phrenology to be theoretically accurate, they may nevertheless break down in practice, and often must do so to a greater or less extent; for in every great centre of population we find a vast diversity of cerebral formations, partly, no doubt, due to normal ethnic development, and partly to the ceaseless crossings of different types; and it is too much to expect that all these differently mixed brains should correctly represent specially the precise relative proportions of their different organs, and

do it in such a manner as to render these proportions externally ascertainable.

But, on the other hand, it would be unreasonable to reject this doctrine, or discourage its study, on the mere ground of practical failures; since, if it be fundamentally true, or only partially so, it may always afford us important knowledge, and need no more lead us into mischief than any other imperfect science, provided it be studied in a really scientific spirit. That the doctrine is not wholly illusory must be evident from the foregoing considerations, even were there no other evidences bearing on it; for the law that no organ can perform two functions is absolute and universal, and is simply another expression for the fundamental law of causation. This is the basis of the doctrine, and this basis can never be shaken. It is not only necessary in principle, but is in actual harmony with all our real knowledge of nature. As to the discovery and localization of the individual organs, and the ascertainment of their proper functions, that is a purely practical question, full of difficulties, open to objections, and one into which, fortunately, we are not here required to plunge. All that the present argument needs is the certainty of cerebral complexity, and of the pre-eminent complexity of the human cerebrum; and these two points, we trust, have been fully established. That the organs of the higher faculties expand themselves in the superior regions of the head, and are there grouped with relation to their affinities, is also a position, natural in itself, in accordance with observation, and well calculated to explain the contrasts between the human and animal brains; but it is not necessary to our argument, and need not be insisted upon. We shall now, therefore, turn to another aspect of our subject.

It is not easy to determine in a perfectly satisfactory manner, by the study of external manifestations, whether certain of the higher mental powers are absolutely wanting in the case of the lower animals, or only possessed in a feeble and embryotic degree. But the very fact of this difficulty makes it clear that these powers do not exist in a *high* degree. Every mental power has a *natural language*, and when a power is possessed in a high degree its natural language is unmistakable. But when it is feeble, or feebly exercised, it may be uncertain whether particular acts should be referred to it or to other powers. Thus, when we see that the sense of shame is never manifested by the inferior animals in the very cases in which it acts most powerfully in man, we may well doubt its existence in cases of less importance, where its action may be simulated by other feelings. Thus, for instance, when a dog, reproved by his master, retires from him with timid look and drooping tail, it may well be questioned whether this expression be not simply a result of ordinary fear and regret

at the anger, real or assumed, of his master; but where an animal possesses any primitive feeling in a marked degree, its language is never to be mistaken. No one can mistake, in the inferior animals, the natural language of fear, anger, aversion, secretiveness, acquisitiveness, or physical and parental love; and no one can mistake in man the natural language of shame, pity, reverence, admiration, awe, mirth, humour, pride, or contempt. There is no meaning in these facts if they do not imply that, on the one hand, there are powers and structures common to man and animals, and on the other, powers and structures altogether peculiar to man.

Let us look for a moment at the functional blank presented in the case of the ape when compared with man. In man, the following powers, imperceptible, or but feebly and flickeringly indicated in the case of the ape, are in high manifestation. The emotion of gratitude, the pleasure derived from approbation, the feeling of self-respect, the sense of shame, of reverence, of pity, of humour, of contempt, of justice, of admiration, of astonishment, of mirth, of curiosity, of beauty, of sublimity, the sense of causation or interdependence, of analogy, of connection, of acquisition, construction, and perhaps others, are powers of the highest importance in the case of man, while there are few of them that admit of demonstration at all in the mental phenomena of the ape. Is it not here, then, that we have the functional gulf?

Led by observation, by a comparison of cerebral and cranial forms with mental manifestation, the founder of phrenology has placed the organs on which depend these various functions in the higher portions of the posterior, middle, and anterior lobes of the brain: if these portions in the brain of the ape are also to be assigned to these faculties, then we have the following result. These higher portions of the simial brain are in this case so feeble in their action that it is scarcely possible to perceive that they have any action at all. If, then, so large a portion of this brain be practically powerless, how comes it that the remaining portion is so wonderfully efficient that it produces animal instincts and animal movements as powerful, or nearly as powerful, as those produced by the corresponding portion of the human brain, though the latter, on this supposition, must be, not three or four times as large, but seven or eight times as large? Here we have another dilemma from which there is no rational escape. Either there is an organic blank, absolute or virtual, in the simial brain, or its higher portions are comparatively functionless, while its lower portions have an enormously disproportionate power. There is no evading this necessity; and if the anatomist takes his choice of these inconveniences, he will but go deeper into inconsistency, as will be easy to show when he ventures upon the step.

It is clear, then, that the only rational conclusion to which we can come in this case is that the simial brain is an organism of far less complexity than the human; that it is absolutely or virtually wanting in many of the highest cerebral organs; and that, consequently, it differs from the human by a structural gulf so vast as to be represented by a deficit in size of from twice to three times its own amount, and a diminution in the number of its organs, or of its matured organs, equal to from twice to three times the number of those possessed in an efficient condition. And if the ape has a number of germinal organs, organs never destined to be developed into functional efficiency, we do not see why this should not be the case with all other beasts as well. But this sort of working is certainly not in harmony with our knowledge of nature. The cases in which we find functionless formations are restricted within very peculiar limits, and bear no sort of analogy to the case in question.

There is another aspect of the subject of high importance which has not yet been taken into account. In adding a new structure to a mechanism—a new organ to an animal type—it requires to be correlated with the existing structures. It may require to be brought into relation with many, or even all of them, and may thus necessitate changes more or less considerable in many or all of them, or otherwise necessitate special appendages and connections in various portions of the general structure. Thus, were we to give to an animal, which did not before possess it, the emotion of reverence, we must first have a new cerebral structure for its production. Then this emotion will require to exercise a controlling power over many other emotions. It must be able to check anger, mirth, curiosity, pride, and so on; and to do so it must be connected with the structures which produce these feelings; while, on the other hand, these structures must, in their turn, occasionally exercise a controlling influence on it. Hence a complicated interrelation is necessitated by the introduction of this single organ. Nor is this all. Every emotion seeks an external expression in proportion to its strength: there must be an outlet to the torrent. Hence the new organ must have its motive nerves, and these must have corresponding muscles, or must, more or less, modify existing muscles. It will require the head to bow in a special manner, the trunk to incline, the eyes to lower, the knees to bend, and so on. It must be brought into direct relation with the external world, through the senses of sight and hearing and with the organs of voice, that it may give a vocal expression to its feeling; and all this, surely, does not amount to a trifling change in structure. Nay, the existence of this new feeling may necessitate a greater power in some other organism in order to be able to resist the extra strain upon it. And thus it may happen that a development of caution

which might very well serve for an ape might be insufficient for meeting the strain created by the more complex relations of man; so that, though a common feeling to the two animals, its organ may require to be larger in the one case than in the other.

If, then, a single additional instinct may require so great an amount of organic change, what must be the case where not one, but many—perhaps a dozen or more—such instincts have to be conferred? And yet the superficial aspect of the brain may reveal nothing of all this. Each brain is moulded in approximation to a common type, and it is only by the study of functions that we can possibly ascertain whether a given organ has been bestowed or withheld.

Surely anatomists have not duly considered these things when they refuse to recognise any great superiority in the human brain. Professor Huxley sees a greater difference between one monkey and another than he sees between man and the highest monkey; but surely this is a one-sided view of the question. At the best it is but the anatomical view in a case where the problem transcends the power of anatomy. If we look in another direction, the whole aspect of the case is changed. We see no single primitive feeling or intellectual power possessed by one monkey which is not possessed by all, from the gorilla to the lemur, nor any greater disproportion between the degrees of their manifestations in the different species than is common in other families of animals. There is no greater mental difference between monkey and monkey than there is between dog and dog; while, when we turn to man, we see many primitive powers broadly, and even intensely marked which offer no clear trace, if, indeed, any trace at all of their presence in any creature below him.

Now, if every mental power must have its external expression, its natural language, we see at once that the human structure must differ at all points from the simial; and we see why it must differ. We see, too, that it must differ in a totally other sense than that in which one monkey differs from another. We see that the human face must have more definite features, and its muscles a more elaborate play, in order to be able to supply the several elements of this extended natural language. We see, too, that even the bones must adapt themselves to these requirements. Hence the external variety and specialization are the consequence and the index of the mental and cerebral specialization and diversity.

It is obvious that sensations are the product of structures, and natural language the expression of sensations. The more varied the language, therefore, the more varied the sensations; and the more varied these, the more varied the structures. All the higher animals have a natural language, varying with the number and strength of their

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sensations. This language is of three principal kinds—vocal, visual, and tactile; the latter embracing those impressions communicated by contact of which the sense of sight can take no cognisance. The vocal language has two main sections—music and speech: music comprises relations of interval, sequence of interval, harmony of interval, quality of tone, loudness, expression, time, &c.; speech comprises pitch, inflection, loudness, expression, &c., with the more material adjuncts of vowel and consonantal articulations. Now it is perfectly obvious, in regard to these various forms of natural language, that man enjoys an unapproachable superiority over every other creature, and equally plain that no beast enjoys any prominent superiority over any other in any of these respects; while the beast most gifted in this respect is certainly not the monkey.

The wonderful scope of musical language could have no possibility if there were not a parallel scope in sensation; and in this language the beast has no share whatsoever. In this respect he is below the bird; a fact of no slight significance. As to speech, the beast has a few inflections, and articulates one or two vowels and consonants according to his genus. But man has not only an extensive alphabetic range, but expresses, by inflection, time, and force, every diversity of feeling. When we come to the language of visual signs the same variety presents itself. Here, as in the other cases, man is unapproachable. Every shade of pain and pleasure, every movement of anger, joy, love, respect, fear, &c., &c., are instantly transferred to the face, unless intentionally concealed. What are the grimaces of the monkey, either in variety or meaning, when compared with these?

As to the external resemblances between man and the monkey, I really cannot see how they present any serious difficulty, or justify any theory of direct relationship. Man is destined to live upon the earth, but there is nothing in this fact which should disqualify him from having a mind of a high order. Living upon the earth, in immediate connection with the animal, the plant, and the mineral, being to his world a ruler and a providence, depending on it for his support, and obliged to make it the theatre of his labours, he requires media of communication, of perception, and volition suited to these circumstances, and he has them. He requires food, and the only food which the earth supplies is that of which other living things partake, and he is fitted for enjoying the very best of this food. Hence his bodily structure resembles that of the highest group of animals. He has a wide range in his food; he eats flesh, roots, fruits, grains, leaves; hence his nutritive system is adapted to this food, and his dental formula presents the various kinds of teeth—molar, canine, and incisor; but he is not meant for eating raw flesh, and therefore, though carnivorous, he has not the dental structure of the animals specially so

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called, but has all the different kinds of teeth in beautiful relation to each other. And so with all other portions of the body. The vertebrate structure suits his range of mind perfectly; why, then, should he be made on any different plan? He requires very perfect organs of prehension, and he has hands and arms which admit of a vast variety of movements, combining rapidity, precision, delicate gradation, and strength. Hands and arms so formed are wholly unfit for the purposes of locomotion, except in the simple act of climbing; and an arborial life would be almost as little suited to the character and scope of the human mind as an aquatic one. It would be a condition of perpetual imprisonment. Man is a builder of cities and roads, a cultivator of the earth, a traveller; his sphere of action is the solid ground, and here his hands would be wholly misapplied as instruments of progression. The task therefore devolves on his feet; and hence the necessity of an erect position, also rendered necessary by the work which devolves on his hands. Hence the arm and hand, leg and foot are, as it were, a clear expression of the power and scope of the human mind, of the mighty labours which it has accomplished, and of the still vaster ones which yet lay latent within it, waiting for the hour which is to call them forth in some distant futurity. It is not the number of inches in bone, or muscle, or nerve that is here of consequence, but the suitability of the instrument to the guiding mind; and in this sense the human extremities are a prodigious leap in structure, slight as may seem the difference between them and those of the ape in external moulding.

Man stands upon his feet erect, secure, and proud, ready for innumerable forms of motion, ready to express in those motions endless modifications of desire, love, antipathy, pity, admiration, joy, anger, &c., &c., ready to confront difficulty and danger; while there is not a bone, a muscle, a blood-vessel, or a nerve which has not in some degree been correlated with these varied requirements; and yet anatomists talk of bodily structures as things to be judged of by the eye and the scalpel, irrespective of the mental powers of which they are the instruments and expression; and hence they see no important difference between the leg or foot of an ape and the leg or foot of a man!

Man comes upon the stage of life wholly defenceless as regards external appliances: covered with a delicate skin, sensitive to every variation of temperature, to every rude touch of thorn or stone; ashamed, and yet naked; his most secret thoughts revealed upon this delicate tissue as on a transparent mirror or on a written page, and revealed in despite of every effort at concealment. What other animate thing has nature thus abandoned? But look! this naked form is suddenly clothed in drapery vying with the rainbow in beauty of tint, with the flower in texture and

in grace, meeting every exigence of temperature, every varying phase of volition, protecting from the thorn and the stone, and amply concealing all that modesty or prudence seeks to abstract from view. And yet naturalists seem to see nothing in this naked skin but a skin without hair. But, to one who looks to the whole bearings of the question, this nakedness is a symbol of supremacy, of varied wants, of endless diversities of taste, of mundane ubiquity in residence, of the love of the beautiful in form, and colour, and texture, and motion; of the wonders of the loom and all that minister to it—steam, ships, the road, the rail, commerce, agriculture, chemistry—where, in fact, are we to stop? This is a portion of what a naked skin means in the case of a being like man. But, to an ape, or a dog, or an elephant, it could mean nothing but destruction or a tropical habitat. The wonder is not in the skin, as skin, but in the fitness of an external covering to the organism to which it ministers.

Finally, man is a master, destined to protect, to punish, and to slay; yet nature has given him no weapons; no horns or antlers like the ruminant, no tusks like the pachyderm, no claws or teeth to tear with and mangle like the tiger, not even a hoof to kick with like the horse. But these things would be stupidities in the case of a being who plays with the flashing steel, the revolver, the rifle, and the cannon, until at last he has no enemies left but those of his own race, before whose terrific engines he must almost pile Pelion upon Ossa in order to purchase a temporary security. The defencelessness of man is not a mere item for enumeration in a catalogue of crude facts, but a condition pregnant with meaning, a condition placing man at an immeasurable distance above that bestial level to which a short-sighted philosophy has lowered him.

But we have spoken of man as we see him in the highest state of advancement to which he has yet reached, and not in his primeval savage condition. Of course, man was made for his maturity, not for his infancy. To the infant, nakedness means real helplessness; but it also means the necessary price of future power, and it further means a mother's boundless tenderness, and all the protecting providence of parental love. And so to primeval man it would also imply helplessness, had not nature here played the part of mother, correlating him with reference to cosmic conditions, graduating susceptibility to external circumstances, withholding powers until there was a fitting sphere for their exertion, and checking desires until there were means for their gratification. Primeval man was embryotic man, as actual man is, doubtless, but infantile man. An embryo could not exist an hour if it had the wants and susceptibilities of a child; and a primeval race would have perished in a generation if gifted with the range of desires and possessing the organic refinement of the higher types of present humanity.

On the other hand, the monkey is simply a beast intended for an arboreal life, just as is the squirrel or the sloth. His movements are rapid, his size often considerable, his strength great. His *terra firma* is the branches of the forest, and to walk or run among these is to have the power of grasping. Hence his feet are prehensile feet, and therefore approximate in shape to a hand. But locomotion is their primary destination; prehension is simply the mode of locomotion. Apart from locomotion, the monkey has scarcely more need of a hand proper than the squirrel or the parrot; what he wants is an eminently grasping foot, and this is exactly what Nature has given him.

The food of the monkey consists of hard substances which demand an order of mastication similar to that of man, and his teeth present a parallel conformity; but, in proportion as the requirement in any way differs, the teeth differ, and present, on the one hand, approximations to those of the carnivora, and, on the other, almost simulate the formula of the rodent.

As to the rounded face and the consequent human look, these must depend on the relations of the external senses and their organs to the brain and to each other, and are no more an evidence of affinity than the resemblances between the owl and the cat. In fact, the monkey is made for his place, as man is for his place: if their structures approach, it is because their requirements approach; and if they differ, it is because their requirements differ; but, between an animal so obviously made for an arboreal life, and a being so obviously fitted for the multitudinous wants and duties of an order of existence entirely special and incommensurate, such external resemblances as these can have no sort of value as evidences of affinity, whatever may be their interest as bearing on the question of *representation* in natural arrangement.

So far, indeed, from the so-called hands of the monkey being evidences of superiority and of near approach to man, they are actually the reverse; for they condemn the animal to an inferior habitat, to an inferior and more limited range of existence. In this view the monkey is inferior to the cat and dog, who have the solid earth for their residence, and consequently a more varied range of stimulants and wants. Of course, a rule of this kind cannot be applied absolutely. It is a question of *ceteris paribus*; but between animals of the same general size and structure, and of the same general mental level, it is an important consideration; and we therefore see that, whatever advantages the monkey may have in certain special points, such as the tendency to imitation, he is in a variety of other aspects a decidedly inferior animal to the dog.

L. BURKE.

(To be continued.)

LANGUAGE AS A TEST OF THE RACES OF MAN.

THE linguistic ethnologists have spent much vain labour in attempts to prove that language is a reliable test of the Races of Man ; and yet it is easy to show that it is no more so than the art of kindling a fire or of fabricating a weapon. This is sufficiently shown by the many and diverse languages spoken throughout the world, differing not only among distinct races, but even with the very same race, as in the instances of the red man of America, of the black man of Hindustan and of Australia, of the negro of Africa and of Polynesia, and of the white man of the Caucasus. But, although language be no test of race, it is good historical evidence—that is, evidence of migration and commixture. Of this we have numerous instances in almost every part of the world. In some cases it happens that a race wholly loses its own native tongue and adopts that of an entirely opposite race. There are at present some 12,000,000 of Africans in America and its islands who once spoke many African tongues, and who now speak only languages of Latin and German origin. In France and the British Islands native tongues only were spoken 2000 years ago, but with small exceptions, they have been superseded, in the first by an Italian, and in the last by a German tongue.

It more frequently happens, however, that a foreign language comes to be intermixed with a native than that it wholly supersedes it. The degree to which the intermixture extends is, of course, proportioned to the degree of intercourse. The language which an Italian people imposed on France has been largely infused into the Germanic tongue which a German people had imposed on Britain ; but, without the help of history, we should not have known that the party who brought this about had themselves been a Germanic people, who had exchanged their Teutonic tongue for a Latin one.

A considerable infusion of Arabic is found in the languages of the Spanish Peninsula, themselves derived from a language of Italy which had nearly superseded all native idioms. History reveals to us how the language of a remote Asiatic people came to be intermixed with a European tongue. The language of Arabia has been infused into that of Persia ; and both together have been infused into all the cultivated languages of the Hindus. Clear evidences of Sanskrit—that is, of a language believed to have been the idiom of a people of Persia—are to be found in all the languages of Europe, ancient and modern ; in the language of Persia, in all the languages of the Malayan Archipelago, in the Tibetan and Tartar tongues, and in all the written languages of the nations which lie between Hindustan and China. By sheer philological groping we ascertain

these curious facts ; for we are without a ray of history to guide us. Unquestionable evidence of Malayan languages are to be found in the many tongues of the many races of man which exist over the 180° of longitude, or one-half the circumference of the globe, which extend from Madagascar to Easter Island ; and here again we have but the glimmering of philology to guide us.

There are a few cases, however, in which language appears, at least at first view, to be a test of race ; and they may be briefly adverted to. The same language is spoken by the same race of men from the western shore of the Persian Gulf to the eastern shore of the Red Sea, and from the Syrian, on the north, to the shore of the Arabian Sea, in the south ; and the language is the same peculiar ancient complex idiom, whether spoken by a nomadic or a settled population. Even in this instance, however, we cannot be sure that in remote times other races speaking other languages may not have existed in Arabia as in other parts of the world, overwhelmed or extirpated by the Arabs. We know, at all events, that within the period of authentic history their language has superseded the ancient idioms of Syria and Egypt—countries inhabited by races distinct from the Arabian.

Another remarkable case in which race and language would appear to be identical occurs among the many islands of the Pacific. Eastward of the Feejee group, inhabited by negroes speaking a language of their own, and lying in the 180° of east longitude, as far as Easter Island, in the 110° of west longitude, and from the equator to the 46° of south latitude, the same race and language, and no others, prevail. Indeed, in one case, that of the Sandwich Islands, the same race and language make a jump of 20° north of the equator. As the existence of one and the same language over so wide a region is impossible without migration, to this, of course, the phenomenon must be ascribed ; and, as the people were possessed of stout canoes, and had made such progress in agriculture as to be able to raise provisions for their voyages, we cannot doubt but that this was the way in which a single tongue acquired so wide a dissemination. As it is not likely that the countries now occupied by the people of one race, speaking one language, were without aboriginal inhabitants, the probability is that these were destroyed or absorbed by the invaders. We have even some evidence of this having been the case. Thus, in our own time, the inhabitants of the Chatham Islands—a different race, and speaking a different language from the New Zealanders—members of the great Polynesian race, have been invaded and nearly exterminated by the latter. We may further notice that all the people of the Northern Pacific Islands, with the exception of those of the Sandwich group, are a different race,

and speak languages wholly different from the widely-disseminated people now referred to.

There is one case in which race and language run so entirely together that we may be disposed to think it an exception to the rule that language is no test of race. This is that of the Esquimaux, who are the same race, speaking essentially the same language, from Behring's Straits to the most southern point of Greenland. They are, in this respect, a contrast to the red men of the same continent, who, although of one race, speak almost countless distinct languages. The Esquimaux are, and ever must have been, from necessity a nomadic people; and this accounts for their wide diffusion; but whether they superseded any aboriginal race or races will never be discovered.

From the explanation now given we can readily understand how the language of one people may have been infused into that of another, or even have wholly superseded it; but a participation in language, or even a total adoption by a people of a foreign tongue, will not justify us in concluding that the parties in such cases are of one and the same race. To this conclusion, however, the linguistic theory of race inevitably leads us. It is this theory that has led a learned and ingenious Professor of Oxford to make black Hindus and fair Europeans to be of one and the same race of man, or, more specifically, to insist that the same blood ran in the veins of the Greek soldiers of Alexander and the English soldiers of Clive as in those of the Hindu warriors over whom they obtained such easy victories in the Punjab and Bengal. The same wild theory is carried to even greater length in a criticism of the last volume of the Transactions of the Ethnological Society in the most powerful and influential of our daily journals. "Language," it observes, "is, to the ethnologist, the most essential element in the life of man; and, by classifying languages, both dead and living, according to a system which admits of the most scientific exactness, he has succeeded in colouring the map of the whole world in a manner very different from that of the physical ethnologist." Our observation on this is, that we have never seen the coloured map of the whole earth thus spoken of, nor ever heard of it, except in such brave assertions as are made in this paragraph. Who has coloured the map of America by races, seeing that the races of that continent are but two, and the languages almost countless? Who has coloured the races of Hindustan on a map, when the race is but one, and the languages at least a score? Who has coloured a map of the diverse races extending from the eastern frontier of Bengal to the eastern boundary of China, seeing that all the languages of this wide region, embracing at least one-third of the population of the earth, are monosyllabic, and therefore incapable of handling for the

purposes of comparative philology? The same question might be asked with respect to Japan and the wide region of Tartary; but we have said enough to show that the alleged map can have no existence. If, in fact, language were the test of race, which common-sense and experience teach us that it is not, we know but mere fractional parts of the 4000 spoken languages of the earth, to say nothing of extinct ones, and thus are in ignorance of the facts which would enable us to produce the coloured map of our critic.

ON THE TERMS CAUCASIAN, ARYAN, AND TURANIAN IN ETHNOLOGY.

THE use of these three words, now so familiar to ethnologists, appears to us to be misleading, because grounded on baseless theories. An examination of their origin will show that such is the case, and that they have really nothing better than their sound to recommend them. Blumenbach, the originator of the present classification of the races of man, founded on the shape of the skull, imagined all mankind to have consisted, originally, of a single race, from which sprang, as mere varieties, all the other races such as we now find them. His notion was that the primordial stock was the white man, but as, even here, there existed considerable variety, it became necessary to select the purest type. In his domestic Golgotha there happened to be a single skull of a Georgian female; and, coupling this very small fact with the reputation for beauty enjoyed by Georgian and Circassian slaves among the ugly Turks, he jumped at once to the conclusion that the original seat of man in the perfection of his form was not Greece or Italy, but the mountainous region which lies between the Euxine and the Caspian, and hence the term Caucasian. Besides undergoing other variations of form, the primordial Caucasian man continued fair in Europe, became tawny in Egypt, brown in Persia and Arabia, black in India, in Africa, in Australia, yellow in Tartary and China, and red in America. When Blumenbach represented the mountains of the Caucasus as the primitive seat of man, and from which he sallied forth to people the wide earth, and to undergo so many metamorphoses, it seems never to have occurred to him that mountaineers are generally homekeeping and unenterprising, and that the very people referred to, now, as in all known times, sheer barbarians, are known beyond their own limits only as purchased slaves. Such is the baseless origin of the term Caucasian, which has, notwithstanding, acquired such popularity that we should not be surprised to find it in the next edition of Johnson's Dictionary.

The term Turanian is just as fictitious as Caucasian. Iran and Turan are two Persian correlative words, signifying literally Persia, and all other countries than Persia. From these come the adjectives Irani and Turani, signifying Persian and non-Persian, and, figuratively, "civilized" and "barbarous;" for the Persians have as high an opinion of themselves, and as mean a one of the rest of the world, as had Greeks and Romans, or as have French and English. The Persians, however, more especially apply the term Turani to their immediate neighbours, the Turks or Turcomans to the north, and the Afghans to the east, two clearly distinct races. The late learned Dr. Pritchard happened to light on the word Turani, and forthwith out of this vague term created a new race of man, chiefly comprising the Turcomans. The linguistic ethnologists, notorious for flights of fancy, have of late given the word a far wider extension, and, to our wonder, we find them including under it the whole black population of Southern India—not fewer than thirty millions of souls.

The term Aryan is just as much a figment as Caucasian and Turanian. It is the invention of the linguistic ethnologists. They call the native country of the people, whose spoken language was Sanskrit, Aryana; and this they consider to be essentially the same as Iran, that is, Persia. Through language and shape of skull, it is surprising what a diversity of people may be and are packed together. The Persians are Arians, the people of the Caucasus are Arians, nearly all Europeans are Arians, the Afghans are Arians, and all the Hindus of Northern India are Arians; but the Hindus of the south, although much liker to those of the north than to any other people in the world, are not Arians, but Turanians. The writer who has pushed this theory to the most extravagant length is the Right Hon. Benjamin Disraeli; for he makes, in the very teeth of Blumenbach, the Jews to be not only Arians, but even pure Caucasians.

ON THE REPRESENTATIVE AFFINITIES OF THE EUROPEAN AND ASIATIC RACES.

CAREFUL observers of nature have long since noticed the remarkable analogies which often reveal themselves in the comparative study of groups otherwise broadly distinct; and many attempts have been made to bring some of these analogies into systematic coincidence, so as to make them the basis of zoological classification; but nothing sufficiently tangible and precise to satisfy the requirements of strict science has as yet been laid before the public. The failures, however, are not such as would tend to

show that the aim of these attempts is chimerical: they simply prove that the true key has not yet been found, or has not been properly used. One useful result, at all events, they have even already led to—namely, that of helping us to discriminate between affinities which imply a direct connection in nature, and those which simply imply analogies between distinct natures; for though there are numberless cases in which no special caution is at all needed—the groups compared being too widely distinct to render it possible to mistake analogy for affinity—yet there are many others in which the two may easily be confounded, and often are confounded; and hence it is well to remember that there are two kinds of affinity, not always very distinct in appearance, though quite so in reality—viz., analogical or *representative* affinity, and true or *connective* affinity. At present the term *representation* is well understood among naturalists as a technical antithesis to affinity proper.

To give a more precise idea of what is here meant by representation, we may state a few of the many and curious analogies which reveal themselves when we compare, for instance, the natural groups of the class of birds with those of the mammalia. Thus the Raptores, or rapacious birds—the falcons, eagles, vultures, and owls—occupy among birds precisely the same position that the Felidæ, or cats, do among beasts; they are a dominant group, remarkable for their strength, courage, ferocity, and the power of their claws and beak, just as are the felines for the same general qualities and analogous structures. The Raptores, however, show the curious fact of being a more developed group. They present a clearly marked subdivision into three minor groups—the falcons, vultures, and owls; while the cats are but a single group, and exactly represent the owls, the lowest of the Raptores. Here, however, the representation is singularly exact. The owls, nocturnal, stealthy, noiseless in their flight, covered with the softest feathers, round-headed, and cat-like in face to a degree which has caused the resemblance to be universally noticed, and the Felidæ similarly nocturnal, stealthy, noiseless in tread, soft in fur, springing on their prey with a sudden bound; and as the lion strikes terror into every beast by its midnight roar, so does the owl wake the echoes of the forest by its shrill screech. And, finally, the barn-door owl hovers around human dwellings just as does the domestic cat.

In like manner the Conirostres, including the crows, magpies, jays, starlings, and various other birds, show, by their liveliness, varied intelligence, tameability, their power of receiving instruction, and their general relation to the former group, striking analogies to the Canidæ, or dogs, though they are not so strikingly separated from neighbouring groups as are the Raptores.

On the other hand, it is not easy to point out, in the group of birds, the precise analogues of the plantigrade and semi-plantigrade beasts—bears, weasels, civets, &c.; but, if we turn in other directions, we find coincidences again pressing on our attention. Thus the ruminants are, among beasts, just what the Gallinacæ are among birds—vegetable feeders, quiet in habit, relatively heavy in make, the birds with limited powers of flight, both social and in many cases eminently domesticable, and in both the young are born at so advanced a stage that they can almost immediately run about and feed themselves, in this respect strongly contrasting with the Raptores and Felidæ, the Corridæ and Canidæ. In both, too, the colours are representative, as is also the quality of the flesh, considered as food; fowl, turkey, and pheasant, for instance, being analogous to mutton, beef, and venison.

In minor groupings we likewise have coincidences. The ruminants present three prominent divisions, the deer, the ox and its allies, and the camels, including the llama and giraffe. Among birds we have the Ottidæ, or bustards, the Gallinacæ proper, and the Cursores, or ostrich group. The analogy of this latter group to the camel has been long observed, while the walk, hearing, and long neck of the ostrich proper at once recall the giraffe, notwithstanding the difference in colour. If we further subdivide the middle group in each case, we shall have among the Bovidæ, or ox family, the antelopes, the ox proper, and the sheep and goats, and among the Gallinacæ proper we shall have the Tetraonidæ, or grouse and partridge, the turkey and its allies, and the pheasants; and here, as before, we find the bird far more advanced in development or ethnic age, just as its lower place in the animal scale would lead us to regard it as an older group than the mammal, though the geological record is as yet vague on the point, owing to the inferior size and durability of the bones of birds, and the diminished chances of their being deposited in geological strata.

Were it fitting to enter here into further details, a multitude of other interesting coincidences might be pointed out in colour, in size, in the development of the tail, in wildness or tameness, even down to such a seemingly curious trifle as the fact that both the bull and the turkey-cock, which are here exact equivalents, are both enraged by the exhibition of a red colour.

We may also observe that the relations of the gallinaceous to the aquatic and wading birds are exactly analogous to those of the ruminants to the pachyderms. Thus, if among beasts we have the whale, the pig, and the horse, we have them matched among birds by the penguins, the ducks, and the waders. As the bird, again, is the more developed group, we have, in addition to the penguins, auks, and divers, which directly

represent the whale, the pre-eminently oceanic Laridæ, or gulls, of which there is yet no counterpart among beasts, just as among the Carnivora we have no counterparts of the vulture or falcon groups, nor among ruminants any representatives of the splendid peacock, or of the more gorgeous of the pheasants.

The Anatidæ, or ducks, are true pachyderms, and the flesh of the goose and domestic duck has the rich lusciousness of pork. In fact, the domestic duck and pig are wonderfully and minutely representative; and the stately swan naturally recalls the elephant, in whom a long trunk performs the office of a long neck. Among the ornithic pachyderms we have not only a far greater multiplicity of forms than among the mammalian, but we have three domesticated types, the duck, goose, and swan, while, among the Suidæ, the pig alone has yielded to domesticity.

These, and the like coincidences, which might be greatly multiplied, seem obviously to imply that nature works on a common formative plan, and consequently that the corresponding sections of this plan represent each other. And if this interpretation be the real one, it is clear that the fact is very important, and that the study of these representative analogies well deserves the attention of the naturalist, since they not only must ultimately suggest correct systems of classification, but may even at present offer important guidance in difficult and disputed cases. Thus the analogies between the camels and the ostriches show that the latter should be included among the Rasores or Gallinaceæ, while the broad distinctness of the Raptores and Conirostres shows us that the cats and dogs are not simply distinct genera, but even distinct orders; and when we look to disposition and character, we see that this amount of separation is fully justified.

These remarks will sufficiently explain the meaning and importance which we attach to the terms *representation* and *representative analogy*. That coincidences of this kind might, in individual cases, be picked out among men every one will readily admit, but that such coincidences should be systematic is what few will be disposed to expect, and least of all could it have been anticipated that systematic coincidences may be pointed out even in the case of nations; and yet there are instances in which such a fact is not merely indicated, but is even clearly marked. In others, again, it would be vain to look for any decided evidence of the kind in our present state of knowledge.

In a case like this, where the subject is quite new, and the observer has to grope his way slowly and cautiously, no one ought to expect from him anything like general completeness, nor ought he himself to aim at anything of the kind. Any premature attempt to reduce a large subject into order could only eventuate in artificial and hypothetical combinations and

illusory correspondences. Nothing of the kind will therefore be here attempted. We shall confine ourselves to a limited area of the globe, and at once distinctly admit that the analogies discoverable there are not to be elsewhere paralleled, except in a manner too vague and partial to be fit for present treatment. Nature is not everywhere equally definite in her groupings: some are broadly and clearly marked, others present but faintly distinguishable gradations. We must, therefore, well study the former before we can hope to see our way through the latter.

The races of Europe and Asia stand prominently out from the rest of the world as the especially intellectual portion of the human family, and they are equally remarkable from the definiteness with which they divide into special nationalities, and from the degree in which those nationalities are severally representative.

In the first place, the two continents are not only distinct as geographical and zoological provinces, but a careful consideration will also show that they are inhabited by two distinct families of man. In speaking thus, however, we have no reference to theories of origin. It will be quite indifferent for the matter in hand whether the creed of the reader be monogenistic or polygenistic, Darwinian or anti-Darwinian: all we are here concerned with is that, *de facto*, and at present, there are distinct races and families of man, however this may have been brought about, and that these races and families are sufficiently permanent in their distinctions to be fit subjects for scientific comparison.

Asia is the larger of the two continents, not merely in the aggregate, but also in its representative subdivisions; and its several races not only occupy larger areas, but are more strikingly divided off from each other, both physically and mentally, than the races of Europe. We have here, indeed, just such a fact as presents itself in the comparison of the bird and mammal; and the explanation which throws light on the one case is equally suggestive in the other. Asia, like the bird, everywhere presents, within corresponding groups, more numerous subdivisions; Europe, like the mammal, everywhere shows traces of greater juvenility, but, like the mammal, it also shows unequivocal superiority. The reader must not, however, suppose that we regard Asia and Europe as being in any way analogues of bird and mammal. Such is not the case; we now simply speak of relative age. In other respects, the European is by far the more bird-like of the two groups. This idea of the greater juvenility of the European family will furnish not simply a probable, but even a certain and systematic explanation of difficulties which otherwise would be very perplexing.

The limits of Asia as a zoological province are probably those which

ought to be assigned to it in an ethnological sense also. The Arctic races, like the Arctic fauna, seem to belong to a distinct category, although these races show many points of resemblance to the Mongolic group. But even were we to view the Sainoides and other tribes of Arctic Asia as true members of the Asiatic realm, still we should have their European representatives in the Laplanders and their American analogues in the Esquimaux.

Leaving this point unsettled, or rather excluding these outlying races from our immediate inquiry, we see that Asia divides ethnologically into two broadly-marked sections—the Western, or so-called Caucasian family, which must include the proper Tartar or Turcoman races, and the Eastern, or Mongolic family. So distinct, indeed, are these sections that they might well be mistaken for primary divisions, for distinct realms; and such, in fact, they are usually considered, for, in a purely physical aspect, the Mongolian seems nearer to the American type than he does to the Caucasian. Nevertheless, when we come to look beneath the surface, and consider the totality of attributes, we see that Asia forms a clearly-defined and consistent aggregate, admitting of very definite subdivision, but not of separation in a primary sense.

If we now turn to Europe, we shall find an exactly analogous subdivision—a Western and an Eastern section: in the east the great Slavonic family; in the west, the Hesperian, or Celto-Teutonic. In each realm the dividing line runs from about north-west to south-east, and in each certain of the conterminous races show mixed affinities. This is, doubtless, in part due to actual intermixture; but, in the main, it is a portion of the representation which we are studying. The European groups are less broadly marked, whether mentally or physically, than their Asiatic counterparts; but the divisions are not the less real, as will presently be seen when we come to a closer study.

That the two realms are really distinct, both from each other and from the rest of the world, will appear obvious in proportion as we critically examine their distinctive qualities. From the American, the Asiatic family is broadly separated by its superior intellectuality. The most favoured races of America cannot for a moment compare in this respect with the Chinese or Japanese, or even with the pastoral Mongols—to say nothing of the Western nations. Many of the American races may rank high, not merely in a physical sense, but also in dignity and manliness of character; but, intellectually, they are children; so much so indeed, that it is difficult not to believe that their civilization must have been mainly due to foreign influences, otherwise it would be impossible to account for the entire disappearance of their ruling and intellectual classes. Had there been here

the broad natural distinctions between the various social elements which we find in the principal nations of Europe and Asia, they would still be apparent, for the object of their conquerors was simply to crush power, not to exterminate ability. The Spaniards freely married Mexican and Peruvian women; and they would not have purposely chosen the dullest and least favoured by nature and education; neither could there be any possible object in getting rid of a man merely because he had talent. Besides, the conquerors, though a fierce, were an intellectual and a lofty-minded people, and they could not help sympathizing with intelligence and high character in their subjects; and we may therefore conclude that the level of the native mind has not materially sunk since the conquest.

But indeed the whole genius, and even the whole physique, of the American races is distinct from that of the Asiatic. The peculiar hair, the generally larger and more robust frame, the character of the eye, and still more of the nose, the taciturn and undemonstrative disposition, the courage and manliness, and the higher sense of personal dignity and independence—all these qualities broadly distinguish the American from the Mongolic family; and nowhere is the distinction so marked as in North America—the region most accessible to Mongolic emigration. We speak, of course, of the tribes east of the Rocky Mountains: to the west there are tribes that may have Asiatic affinities.

Nothing need be said of the Australian and Negroid races, whether of the Pacific or of the Indian Ocean. The distinctions of all kinds are here too broad to be mistaken by any observer; and if the Polynesian family seems to have close relations with the Malay, they certainly do not imply direct affinity, for the entire character of the two families is broadly distinct. The large stature, the muscular form, the extreme vivacity, gaiety, accessibility, and pleasure-loving tendencies of the Polynesian races offer a picture widely different from anything seen among the Malay tribes. On this head we cannot do better than refer to the strikingly graphic picture of Malay impassiveness, as compared with Papuan excitability, presented by Mr. Wallace in his valuable paper on the races of the Indian Archipelago, in the last volume of the Transactions of the Ethnological Society, pp. 199—205.¹ Mr. Wallace describes the Malay as impassive, reserved, diffident, and even bashful. "His feelings of surprise, admiration, or fear, are never openly manifested, and are probably not strongly felt. He is slow and deliberate in speech, and circuitous in introducing the subject he has come expressly to discuss."

¹ *On the Varieties of Man in the Malay Archipelago.* By ALFRED RUSSEL WALLACE. Read January 26th, 1865.

"When alone, the Malay is taciturn; he neither talks nor sings to himself. When several are paddling in a canoe they occasionally chant a monotonous and plaintive song. He is cautious of giving offence to his equals." "Practical joking is utterly repugnant to his disposition; for he is particularly sensitive to breaches of etiquette or any interference with the personal liberty of himself or another." "The Malay seems to have little appreciation of the ludicrous, and does not laugh heartily." "He rarely expresses joy or gratitude openly. If you make him a present, he receives it in silence," &c., pp. 200, 201.

In contrast with all this, the Papuan is described as excessively impulsive and demonstrative in speech and action. "His emotions and passions express themselves in shouts and laughter, in yells and frantic leavings." Mr. Wallace describes a scene in which these characteristics were displayed in the most extravagant manner. And, speaking of the constant activity and noisiness of these people, he adds that, during a residence of two months in a native house in the interior of the Aru Islands, occupied by about five families, "from morning till late at night there was a continual row," to the utter astonishment of his Malay servants; pp. 203, 204.

The Papuan, of course, is widely distinct from the Polynesian; but we allude to him as setting forth by contrast the Malay character. In liveliness, excitability, garrulity, and mirthfulness, some of the Polynesian races only differ from these Papuans by having these qualities tempered by a greater amount of refinement, intelligence, and elevation of character.

From Europe, Asia is even more definitely separated than it is from the preceding centres—not because it differs more intrinsically, but because the two regions have a higher and more specialized nature, and therefore clearer distinctions and more numerous points of comparison. Compared with the European, the Asiatic is grave, sedate, slow, unenthusiastic, religious, reverential, patient, and pre-eminently conservative; and this is more especially seen when we contrast representative races. Compared with the Asiatic, the European is pre-eminently gay, joyous, mobile, restless, enthusiastic, aspiring, enterprising, curious, playful, humorous, mimetic, witty; he has a more expansive and diversified mind, and a keener and loftier sense of personal independence, even when less dignified in external manner; and when the two come together, on anything like equal terms, the European invariably rules.

These contrasts are as clearly marked in the case of the nations of Western Asia, which so nearly resemble the European in physical features, as they are in that of the Mongolic family, which differs so widely from both in this respect; and this fact shows that Asia is a distinct aggregate, every-

where exhibiting certain common properties and affinities, notwithstanding the breadth of its subordinate lines of division.

Compared with the European, the Asiatic has no fun, no humour, no drollery, no mimicry : we can hardly imagine him deliberately perpetrating a pun, even under the infection of European society ; and as to an Asiatic "Punch" or "Charivari," the idea is altogether preposterous.

A contrast of this kind is all the more remarkable from its not bearing any direct ratio to mental rank ; for if, on the one hand, the European be higher than the Asiatic, on the other, the Papuan, Negro, and Polynesian are far lower ; yet these three families are emphatically joyous and mirthful.

As regards music, too, the contrast is very striking. It is not till we come to extreme Western Asia, in fact to the Syrian races, that we can at all speak of Asiatic music in a European sense. And yet the Negro is musical, though otherwise so lowly in type. In many other respects, also, European superiority is broadly marked ; but as this general superiority might be referred to accidental and transitory causes, we prefer alluding to points evidently independent of mere social condition.

No one can doubt that a close general affinity of nature pervades the whole European family. A European can understand and sympathize with a European, no matter of what nation, in a far more intimate degree than he can with a member of any other ethnic realm, however geographically near. A Spaniard and a Moor are amongst the nearest of neighbours, and yet, for all social purposes, they might as well be antipodes. Even the Jew, cosmopolitan as he is, and mixed up as he has been for ages commercially with every nation in Europe, has nowhere, as a class, assumed European sympathies. It is not an affair of religion only ; for there are religions in Europe which differ quite as much from each other as Judaism differs from Christianity.

When we come to the two great sections of the European family, a still closer affinity and interaction is observable in the constituent elements of each. Despite political antagonisms, Slavonian leans to Slavonian, while the nations of the West act as if they had a common nature, and a common destiny, as they actually have, speaking in the rough, a common culture, a common social organization, and a common literature.

On the other hand, the same phenomena are observable in Asia, except that here, owing to the greater individuality of the several nationalities, the general intercommunion is not so close. But we see, nevertheless, how readily the Mongolic family interacts, and we also see how readily any dominant people in Western Asia can bring together the entire region. The Arab empire not only intimately united Arabia, Syria, and Persia,

but even brought Tartary and India into the circle of relationship. We see the obstinacy with which the races of Asia reject the creeds of Europe; and yet Eastern Asia has found no difficulty in accepting, and assimilating to its wants, the creeds of Buddhistic India, as Eastern Europe has accepted and assimilated Italic Christianity; for Christianity is emphatically a European development, even though its seed was sown in the East, and its development belongs to the period of strictly Italic dominion. It is, in fact, as much an Italic creed as Buddhism is an Indian one.

If we now look to national subdivision, the representative analogies between the two continents become exceedingly striking, and in the western sections exceedingly precise. Western Asia presents four broadly distinct nationalities—the Arab, the Persian, the Hindu, and the Tartar. There is no possibility of confounding these types when we view them from their mental and social aspects. They are distinct in genius, in history, in social tendencies—in fact, distinct every way. They are also distinct physically; but the physical differences are not so prominent; for as we ascend in the scale of nature, physical differences, as compared with mental ones, become less and less marked. Man changes little bodily after he has reached adult age, until old age advances; but he may change greatly in mind. So is it with races. Among advanced races the prominent differences are mental; among low ones they are physical.

Now Europe gives us exact counterparts of these four types. We have Spaniard, Gaul, Italian, and German. Even the geography is representative. The Spanish peninsula and the Arabic peninsula, the Indian and the Italic, the angular position of France and Persia, with Germany and Tartary respectively in the background. If we remember that, hypothetically, we have assumed Europe to be younger than Asia, we shall see why it is that all its nationalities have more limited areas, with less distinctly marked physical features, the races themselves being likewise less prominently marked. This will account for the difference in shape between India and Italy, while, if we further remember that Corsica, Sardinia, and Sicily are essentially Italic islands, we have only to suppose the intervening sea between them and the mainland filled up to have Italy approximatively shaped like India, while we also see room for further growth and resemblance in the direction of the Adriatic. We might, too, observe that Etna and Vesuvius and Stromboli, and the many other signs of volcanic action and gradual elevation which the entire region of the peninsula presents, would seem to imply that the programme is already slowly but surely working itself out.

To the north-west of the regions under consideration, we have, in Asia, Syria, the Caucasus, and Asia Minor, severally representing, geographically

and ethnically, Britain, Scotland, and Ireland. In Europe, indeed, this region is not only separated from the continent by the ocean, but is so far broken up as to form two, and almost three islands; while, in Asia, its several sections form an unbroken block with each other and the continent. But, then, geologists tell us that there are evidences, especially in the flora of the British isles, which plainly imply that, within a comparatively recent geological date, Ireland was connected with Spain and with Britain, and Britain with France and the North of Europe; while the presence of great deserts, and various other evidences of recent upheaval, unequivocally prove that at possibly a still later date Syria and the Caucasus were completely isolated from the Asiatic continent.

At the south-east we still find the coincidences carried out. In the one case we have the region of farther India with races showing decided affinities with both the eastern and western sections of the continent, while yet distinct from both, and, lower still, we have the Malay family; but whether this is to include only the Malays proper—viz., the inhabitants of the Malay peninsula and of the islands of Sumatra and Java—or is to embrace all the brown races of the Archipelago, is a point not yet fully made out in reference to this doctrine of representation.

In Europe we have the counterpart of this formation, on, though, as before, a small scale, in the various races of Greek affinity inhabiting Turkey in Europe, Greece, the islands of the Archipelago, and the coasts of Asia Minor. The points of apparent difference, especially that of the seemingly disproportionate superiority of the Greeks as compared with the Malays, will be considered when we come to more detailed comparisons. The races of North-western Turkey, with their marked Slavonic affinities, are a close parallel to the races of Tibet, with their Mongolic affinities.

We have not yet spoken of Scandinavia, a region so distinct in Europe that, at the first aspect, it would seem to have no genuine representative in Asia, either geographically or ethnically. If, however, we look a little closer, the affinities will gradually come forth. The chain of the Ural, on the one hand, and of the Dofrafield, on the other, give us two fixed points from which to draw our lines. Geologists speak of a great Asiatic Mediterranean, of which the Caspian and Aral are remains, which covered considerable portions of Northern Persia and independent Tartary, gaining on the west not only the Black Sea, but even the Baltic, and to the north and east reaching, by the region of the Irtish and Obi, even to the Arctic Ocean; and this region we now find inhabited by a people who have played in Asia the very part which the races of Scandinavia have played in Europe.

That the Turcoman races, if not the real originators, were powerfully instrumental in the formation of the great Mongol empire, may be inferred from many indications, while their unequivocal dominance to the west, in Persia, Syria, and Asia Minor, reminds us of the prowess of the Normans in France and the British islands, of the dynasties founded by them in Russia, of the deeds of the more ancient sea-kings, and of the still remoter events of which the terms Cimbri, Cumraig, Sicambri, &c., are the fading echoes.

If we now look to the two eastern sections, we see them presenting, both geographically and ethnically, a very strong contrast to the western. Instead of being broken up into distinctly specialized countries and nations, they are massed and unbroken, and their populations have so moderate a share of individuality that each region is easily ruled by a single central and despotic power. There is an emperor in Peking and an emperor in St. Petersburg; both are obeyed with the same implicit obedience, and both are looked up to with the same slavish reverence and awe. As to history, Slavonia may be said to have none, either written or monumental; while the history of Mongolia, though it looms into consequence in later times, shows little of the diversity and less of the remoteness which belong to the annals of the western regions. China, indeed, has annals claiming a vast antiquity, but they are far too nicely divided off into dynasties, and follow far too servilely a given mythic formula, to meet the requirements of modern criticism, while they come to us without any monumental attestation that can pretend to a remote origin.

If we look for the separate nationalities of these eastern sections, we are presented with a curious contrast. The intellectual races of the Mongolides are at the extreme east, those of Slavonia are at the west—just as if the exclusive and sympathetic Mongols had turned their backs upon the west and its institutions, determined to work out a destiny of their own—while their European counterparts, with a higher range of aspirations, looked longingly to *their* west, and turned with dismay from the dreary wastes of Siberia. This, however, is a poetical flourish, and need not be further thought of; and, after all, this may not be the true adjustment, for the races of these regions are not so specialized as to be unmistakable in their affinities and representation, and their contrasts in civilization may be relative to the present epoch of the world rather than to intrinsic nature; but, at all events, their distinctions are not of a kind that would justify the minute analysis which may be attempted in the case of the western sections. We will only observe that China is obviously the India of the Mongolic races, and probably is equivalent to both Persia and India; while, in the greater bravery, independence, and individuality

of the Japanese, we may find some kind of analogy to the Arabian character. But all this is far too vague and faint to be dwelt on with any emphasis.

If we look still closer to geographical characteristics, we shall see many striking coincidences. We have the Alps and the Himalayas, the Dofra-field and the Ural, the Pyrenees and the mountains of Northern Arabia, the steppes of Russia and of Mongolia. We have the Rhine and the Indus, the Po and the Ganges, the Danube, Dnieper, and Volga, and the Kiang-ku, Hoang-ho, and Amoor, to say nothing of a host of minor coincidences; and everywhere the European representatives are on a smaller scale. It is this systematic keeping which shows the analogies to be genuine and natural, and not simply accidental and selected.

If we now come to more decisive scrutiny, we see that, morally and intellectually, as well as physically and geographically, India is and has been in Asia what Italy has been and is in Europe, except that we do not know when the Hindu races were really conquerors westwards, or that they ever were so. But, then, if we view Asia as ethnically older than Europe, we may account for this difference. The corresponding civilizations of the two regions would not, in this case, belong to the same relative ages, but Europe would have done in its infancy what Asia was only capable of doing at a more advanced age. Then the races lying to the north and west of it, which are obviously more powerful in physique, were sufficiently developed to resist its dominion, while the corresponding races of Europe, in the days of Italic greatness, if physically robust and manly, were too low in civilization to resist the southern power; besides, even at the present day, the physical contrasts between the several nations of Western Europe are by no means so great as those which exist between their Asiatic counterparts. Apart from this, however, and remembering that we have to look for analogies, and not mere servile copying, it may easily be seen that India has been to the races of Asia what Italy has been to those of Europe.

Both are great monumental centres, showing, from the successive and diversified strata of their monuments, that they have been theatres of civilization and empire at many and widely-separated epochs. Both are inhabited by races eminently fitted for civilization—intelligent, laborious, artistic, intellectual. Each has a magnificent language and literature, and each has been the centre of the creeds and philosophies which have enlightened their respective realms; and, by a singular coincidence, these creeds and philosophies have in each case divided into two great branches, the one of which has been accepted by the western and the other by the eastern section of each realm. In Europe we have Latin and Greek Christianity, in

Asia, Brahmanism and Buddhism; and there is a singular parallelism in the relations of these creeds, simply because they severally reflect the characteristics of the races which have accepted them, and which, in accepting them, have gradually modified them into suitability to several natures. We are not entitled to say that Brahmanism has travelled westward beyond the limits of India; but, at all events, its fundamental machinery, its leading myths and deities, are all but identical with those of Greek and Roman fable, and show numerous points of affinity with the creeds of the intervening nations.

(To be continued.)

COMITÉ D'ARCHÉOLOGIE AMÉRICAINE DE FRANCE.

On the 17th instant a meeting was held at No. 9, York Place, Baker Street, to meet a deputation from the Comité d'Archéologie Américaine de France. The deputation consisted of Dr. Martin de Maussy, Vice-President of the Society, M. Charles de Labarthe, Secretary, and M. Léon de Rosny, a member of the Council.

The object of the deputation in visiting London was to confer with scientific men interested in the study of American Archaeology, to inspect the public libraries, and collect materials bearing on the history of the New World anterior to the discovery of Columbus; and it was also hoped that the presence of the deputation might have the effect of giving an impetus to the study, and perhaps ultimately lead to the establishment in this country of a similar society to that represented by the gentlemen of the deputation.

Owing to the lateness of the season, the meeting was less numerously attended than it otherwise would have been, while the limited stay of the deputation did not afford time for much previous preparation. Among the gentlemen present, besides those already mentioned, were Mr. William Bollaert, Corresponding Secretary of the Society; Mr. Nicholas Trübner, Corresponding Member and Hon. Secretary of the Conference; Mr. Kenneth Mackenzie, the Rev. W. G. Cookesley, Mr. Burke, Mr. S. Bollaert, Mr. G. W. Smith, M. Camille, M. Edward, M. De Fleuve Blanc, and three Japanese gentlemen.

As we had not received, before going to press, any complete report of the proceedings, we must content ourselves with a very brief summary of what took place.

The Vice-President of the Society, M. de Maussy, was in the chair read a short address explanatory of the objects of the Society, and o present meeting. Mr. Bollaert replied in the name of the English g men present, welcoming the deputation to this country, and expre his own great interest in the subject, and his desire to co-operate in efforts that might be here made to promote the study of Ame Archæology.

M. de Rosny followed in an animated and eloquent address, rec ating the compliments paid by Mr. Bollaert to French science enterprise, and expressing the great pleasure which he and his fr experienced in visiting this great country and conferring with its scie men.

Mr. Burke, having been called upon by Mr. Trübner, also declare warm interest in American studies, and his wish to see them more getically prosecuted, and rapidly alluded to various evidences whic his opinion, were calculated to assign to some of these antiquities a remote origin, while, in other cases, they implied connections between Old World and the New in pre-historic times of far more importance was generally supposed.

M. de Rosny again replied, after which the Secretary, M. Laba read a paper on the subject of the studies pursued by the Co d'Archéologie Américaine. Mr. Kenneth Mackenzie then addressed meeting, and spoke of the friendly interrelations existing between the countries, and the pleasant thought of the two fleets then lying side side at Cherbourg in perfect amity. He*then addressed himself to subject of American antiquities, and especially mentioned some cu points of coincidence between the existing ceremonials at the Court Ava and Burmah and those practised under the Incas of Peru. A Rosny having again addressed the meeting, this time in English, a few additional remarks having been made by Mr. Bollaert and Mr. Bu the Honorary Secretary, Mr. Trübner, called attention to a memoir some religious ceremonies of the Mandan tribe of North American Indi written by Catlin in 1832, while resident among them, but only rece printed, at the expense of George Witt, Esq. Mr. Trübner, after scribing the character of the memoir, and the circumstances conne with it, read an extract from it, descriptive of the ceremonies in ques which had reference to one of the many American traditions of the g deluge. One of the leading actors in the ceremonial announces tha has come from the Rocky Mountains, that the whole world has been stroyed by water, that he is the only survivor, and has come to anno the fact to the tribe and to promise them his protection.

The memoir is illustrated by the original drawings of Catlin, made from sketches taken at the time. The memoir, however, is not suited for general circulation, and consequently only a few copies have been struck off.

At the close of the meeting Mr. Bollaert exhibited the following interesting objects: a photograph of the Mexican Zodiac; the hieroglyphical Maya alphabet, with the signs of the months and days; the calendar of New Grenada; a golden Peruvian calendar recently discovered at Cuzco; and a curious drawing of a Peruvian holding a telescope to his eye, proving, if ancient, their acquaintance with that instrument.

THE ANTHROPOLOGICAL CONGRESS.

OUR attention has been called to the following extract from the *Birmingham Daily Gazette* of August 24th, which, as bearing upon approaching events, will doubtless interest many of our readers:—

ANTHROPOLOGICAL CONGRESS.

THE QUEEN'S COLLEGE.

At a special meeting of the Council, held yesterday, present—The Dean of the Faculty, Dr. Lloyd, Messrs. Harris, Trow, Cliff, J. B. Payn; Professors Dr. Suckling, Clay, Johnson,—Mr. J. B. Payn, on being called to the chair, requested the Dean of the Faculty to read the notice issued on the authority of the Principal, the Earl of Lichfield, calling the meeting. The circular having been read, the following communications were laid before the Board:—

“Anthropological Society of London, 4, St. Martin's Place,

“August 16, 1865.

“Dear Sir,—I am very much obliged for your prompt and courteous letter of the 14th inst., which I have laid before the Presidents and Committee. I hope that the enclosed formal letter may produce the desired effect.

“I am, dear Sir, yours very truly,

“C. CARTER BLAKE.

“William Sands Cox, Dean of the Faculty, F.R.S., &c.”

" Anthropological Society of London, 4, St. Martin's Place,
 "August 16, 1865.

" Gentlemen,—I am directed by the President and Council of the above Society to ask for the use of the Lecture Rooms, Library, and College Hall of the Queen's College, Birmingham, for the use of an Anthropological Congress, which it is contemplated to hold in Birmingham at the meeting of the British Association. Should the General Committee of the British Association appoint a special section, we may not require all the rooms I have mentioned, but we shall still be glad to have the use of the Lecture Room, and a place for the exhibition of a large number of rude stone implements recently discovered in Shetland, where explorations have been made for the Earl of Zetland and the Anthropological Society of London.

" I have the honour to be, Gentlemen,

" Your most obedient servant,

" C. CARTER BLAKE, Assist. Secretary.

"To Principal and Council of the Queen's

" College, Birmingham."

In proposing that the application be granted, the Dean of the Faculty observed, " I learn from the Society's publications—a Society devoted to the investigation of the history of mankind—that since its foundation, two years and a half ago, under the guidance of its devoted and energetic officers, it has achieved a success unexampled in the history of scientific societies, numbering at the present time nearly 600 Fellows. The Society has already published six volumes of translations from foreign works on Anthropology, one voluminous volume of *Memoirs*, and ten numbers of the *Journal*. It has likewise appointed correspondents in almost every part of the known world, and is forming, as funds permit, a library and museum of Anthropology, which will eventually be of the utmost value to the students of mankind. The impetus given to the study of Anthropology in this country has not been without its results elsewhere, if we may judge by the establishment within the past year of sister societies at Madrid, New York, Rome, and Melbourne. At Hanover it is in contemplation to devote a special section to Anthropology at the annual meeting of the German Association of Naturalists. The Council of the Anthropological Society have sent in an address to the President and Council of the British Association asking for their support in the application about to be made for a new section. Professor Phillips has repeatedly declared that the rules of the British Association are capable of any modification or extension demanded in the interests of science. Already the non-recognition of Anthropology in our national congress has been the subject of

comment and animadversion by illustrious foreign professors of that science, and their views have been indorsed by some of our contemporaries in this country. I sincerely hope, and I feel confident that every professor of this College will join with me in the hope, that the British Association will cordially admit the Anthropological Society as a separate section at the approaching meeting in this town." The Dean of the Faculty then alluded to the interesting article by Bishop Colenso "On the Efforts of Missionaries;" articles "On Missionary Successes," by Bernard Owen; "On Missionaries among Savages," by Winwood Reade; to the able reviews of "Bunsen on Ethnography, and Diefenbach's Introduction to Ethnography, and the History of Civilization," published in a late number of their Journal, and concluded by proposing, "That this meeting has sincere satisfaction in placing the College Hall, Library, and Lecture Rooms at the service, free of charge, of the Anthropological Society, from Monday, September the 4th, to Saturday, September the 16th."

The motion was cordially seconded by Dr. Lloyd, who dilated at some length on the important labours of the Society and the number of valuable works already published. The resolution was unanimously adopted.

The Chairman referred to the necessity of a sub-committee to carry out the resolution, in order to afford the Society every facility of operation during their interesting meetings. It therefore gave him great satisfaction to propose from the chair, "That the Warden, the Dean of the Faculty, the Professors of Chemistry, of Anatomy, of Physiology, with power to add to their number, do form a sub-committee to make the necessary arrangements for the reception of the Anthropological Congress."

The motion was carried unanimously, when the meeting dissolved.

ANTHROPOLOGY AND THE BRITISH ASSOCIATION.

To the Editor of the ETHNOLOGICAL JOURNAL.

SIR,—It is with equal pain and regret that I have just read an article in your Journal criticising, or rather denouncing, an article in your contemporary the *Anthropological Review*, on the recognition of the science of Anthropology by the British Association.

In the first place, you say, "the writer has chosen to attribute unworthy motives;" such I deny to be the fact. I did, however, charge certain

members of the Ethnological Society with being influenced by ungenerous motives in their opposition to the Anthropological Society.

I again affirm that the opposition to the recognition of Anthropology at the British Association has not been based on disinterested scientific considerations. I do not now speak of your own reasons for joining in this opposition, but of the published remarks of those who have spoken against the recognition of Anthropology, as a sufficient proof of the assertion I then made.

I know not what may have induced you to oppose the recognition of Anthropology by the Association, but, as far as I can judge by your article, it arises altogether from a mistaken conception of the whole question under consideration.

Some ethnologists profess to be content with the present position of their science, especially those who take an interest in geography. Section K is the popular one, and is generally overburdened with communications. Many ethnologists think that it would be better if there was a special section for the science of man; and the only charge which can be brought against anthropologists is that they agree to this proposal.

I say most positively, that in so far as you are trying to prevent this section from being appointed, so far are you endeavouring to injure the progress of science, and to oppose many of the leading ethnologists of this country. Ethnologists were divided on this question long before the Anthropological Society was ever heard of.

I again affirm that there can be no scientific grounds on which to oppose Anthropology. The only question to be considered is, whether there will be a sufficient amount of papers to support a new section. That is the only subject whereon you can write, and which all real lovers of truth and science will alone consider.

If a new section be appointed, it cannot fail to assist materially the progress of the science of man. The more public attention is directed to this subject, the better for all parties.

If ethnologists are content, by all means let them retain their present position in connection with Geography; but I hope that anthropologists will never consent to disgrace their science by allowing it to receive the annual contempt to which Ethnology has long been subject at the meetings of the British Association.

I am, Sir,

"The writer of the article 'On the Prospects of Anthropology at the forthcoming Meeting of the British Association, 1865.'"

THE ETHNOLOGICAL JOURNAL.

ETHNOLOGY AND ANTHROPOLOGY.

Our correspondent of the *Anthropological Review* appears to think that we have been unduly severe in our comments on his article in the last number of that periodical, but on that point we cannot agree with him, nor do we think that any dispassionate reader who compares the two articles will take his view of the case. Did we wish to keep the subject open, our simplest vindication would consist in the transfer to our pages of the whole of the three or four paragraphs in which the more objectionable passages occur; but we do not wish to prolong any such discussions, and we shall now merely observe that the phrase "unworthy motives," to which our correspondent objects, is not only in harmony with the entire tenor of his article, but is, in fact, a milder expression of that tenor than his own words. Surely "the ungenerous motives of a *faction*" cannot well be other than "unworthy motives."

Neither can we agree with the writer in his statement of the main question at issue. We are not opposed to Anthropology: how should we be, when we insist on the fact that Anthropology and Ethnology are but different names for one and the same science? Of course, too, we admit that "there can be no scientific grounds on which to oppose Anthropology," nor any other real science either. No one assumes that there can be; but there may be grounds, and even scientific grounds, for opposing claims set up in connection with a given science. That is the point at issue; and it is utterly unfair to represent the opposition made to such claims as an opposition to Anthropology itself. Indeed it is simply ridiculous, at the present time of day, to talk of Anthropology as being opposed by any section of British scientific men. There are, however, people who do make a distinction between the Anthropological Society of London and Anthropology itself, though it would really almost seem as if there were other people who do not.

Neither are we opposed to the recognition of Anthropology in the British Association. We hold, on the contrary, that it is recognised there already, and is even very popular there. It is recognised in Sub-section E, under the name of Ethnology, a name under which it was widely and honourably known long before any of the young gentlemen who are now so loud in its advocacy were themselves known to science. We are ready and most willing to give these gentlemen all credit for their zeal and energy. We rejoice to see that they have already greatly increased the number of those who feel some interest in the subject, and we shall cordially

welcome any advances which they may make in the science itself; but we must be allowed to draw distinctions between scientific bustle and scientific progress, and to protest against the treatment which Ethnology and Ethnologists have received at their hands during the past three and a half years.

Neither are we opposed to the recognition of Anthropology, even by a distinct section, in the British Association; on the contrary, we have already, in our first Number, emphatically expressed our opinion in favour of such a recognition. We have there said: "Of course we think that so important a science as that of man ought to have a section of its own, whether convenient or inconvenient;" but then that opinion will not justify us in giving a hostile turn to our advocacy, or in forgetting that others have rights, opinions, and conveniences as well as ourselves. Neither ought we to forget that the science of man, however great its intrinsic importance, is as yet an unformed science, and that the great majority of those interested in it are simply amateurs or occasional or accidental workers on particular topics, and that therefore it cannot have the same kind of claim to recognition in a body like the British Association that older and more fully organized sciences have. The case, we contend, as we have already said, is one for calm discussion, not for personal complaints and bickerings.

As to any real distinction between Anthropology and Ethnology, we emphatically assert that there is none, and can be none; and in our first Number we have given ample reasons for this statement. When our arguments have been met, we shall be prepared to take up the subject anew. Anthropology was never looked upon in this country as a distinct science from Ethnology until the Anthropological Society of London was formed, nor, we believe, in France till the Anthropological Society of Paris was formed. It is the existence of these bodies and the etymological distinction between the two names which have suggested the notion of distinct sciences. But the notion is purely superficial, and merely shows how vague and inaccurate has been the estimate formed of the question of race by those who have originated or who have given currency to this idea of distinct sciences.

The *scientific* study of race as a *branch* of Anthropology is a simple absurdity, since race is the great central fact of the entire science—a fact of which the laws and phenomena cannot be evolved by any sectional workings, but must be sought for in the comprehensive and careful study of the entire subject. The question of race meets us at every point. If we seek to distinguish between man and the animal, it is a question of race; if we look to the differences between man and man, it is still the same—individuals differ, classes differ, nations differ, ethnic realms differ,

and all our knowledge of the why and wherefore of these differences has to be sought for in the laws of race. Races differ historically, archaeologically, linguistically, psychologically, anatomically, physiologically, politically, socially, &c., &c., and even, for aught we yet know, geologically; and the facts and laws of these differences are the sole object of pursuit. Take away race then, and what remains for Anthropology to work upon? Carry out the study of race to its legitimate extent, and where is the unoccupied ground on which a distinct Anthropology can set its foot?

These are our reasons for what is called our opposition to Anthropology. They are no new reasons with us; we could have given them any time within the last eighteen years or more. We have virtually given them long ago and often, and our ideas on the subject are far too clear and definite to be now confused by any such sophistries as have been bandied about during the past three years—sophistries of which we do not question the sincerity, but simply the logical force. We claim the right of holding the name under which we have so long worked, and of holding it in its true and only true scientific sense—the sense, too, in which we have always held it. In other respects, we have no sort of quarrel with the word Anthropology. It is an excellent word in its way, but it is not better than our own, and certainly not so comprehensive. As long, however, as there are two societies amongst us severally bearing these names, so long must both continue to be used. This is an inconvenience; but it is not one of our creation.

Our correspondent assumes that the only question which we have to consider, the only subject on which we can write, “and the one which all real lovers of truth and science will alone consider,” is, “whether there will be a sufficient amount of papers to support a new section.” We must take the liberty of objecting altogether to this style of argument. We cannot admit that our being lovers of truth and science is in the least contingent on our agreement with the writer on this point. Neither can we see how such a mode of reasoning is in the least fitted for convincing any one; but it is eminently fitted for making a disturbance. It is this style of argument which has given us all our fanaticisms, and more than half the horrors which have desolated the earth; and though we cannot expect to see such reasonings excluded from the struggles of nations and the conflicts of politics and creeds, yet they are so uncalled for, and so discordant in the quiet pursuits of science, that here at least they ought to be rigidly proscribed. We have had a great deal too much of this kind of argument in the present controversy, and we cannot see the remotest prospect of peace while one party insists on seeing moral delinquents or personal antagonists in all who are opposed to its views.

If a sufficiency of papers were an adequate reason for the formation of a new section in the Association, a few energetic men might soon create a necessity for twenty new sections, and probably would do so. We hardly think, then, that our correspondent will find this argument looked upon as so valid and decisive as he seems to consider it.

But, assuming a willingness on the part of the General Committee to form a new section for the science of man, how is the matter to be managed, and what is to be the name of the new section? If Ethnology is still to be left in Section E, then there is the superfluity, in a crowded Association, of two distinct bodies having identical objects, working on identical subjects, and differing only in name. If the Association rules that Ethnology is not the same as Anthropology, then it saddles itself with the responsibility of a plain scientific fallacy, it contradicts facts, and it contradicts history, and does injustice to Ethnologists, by limiting, as far as definitions can do so, their legitimate sphere of action; and, after all, it has no power whatever to enforce its decree. Ethnology will still remain intrinsically that which nature has made it, and its followers in Sub-section E will work it out according to their individual lights and leanings, and papers will receive precedence according to their supposed value and interest in the estimation of the authorities of the time being, and quite irrespectively of what is going on in the section of Anthropology. Under such an arrangement, then, nothing on earth can prevent there being in the Association two distinct departments for one and the same subject.

On the other hand, if Sub-section E be abolished or otherwise disposed of, then what is to be the name of the new section? All is not plain sailing here either. The claim on the part of Anthropology as being a different or more comprehensive science is untenable: the question must therefore be considered on grounds of convenience, utility, and the like. Anthropology may claim to be a word now generally used by Continental writers, and bidding fair to become still more general, if we are to judge from the formation of several new societies under the name. This special publicity, however, is not yet five years old.

In this country also the word is now widely known, but has become so only within the last two or three years, and purely through the efforts of the Anthropological Society of London. Within the present half-year, indeed, the word has been repeated with unusual frequency by the public, but whether with advantage or disadvantage is a point on which opinions are much divided.

It may further be urged that the Anthropological Society of London is a very energetic body, that it already numbers more than 600 members, has associates and correspondents in various parts of the world, and

is likely to give an important impulse to the study of the science of man. We do not remember any other point worth mentioning on which a claim may be based in favour of the word Anthropology; for as to the published labours of the Society, irrespective of their translations, they have not yet established any claim to superiority, or even to special difference, except it be upon some points of very questionable advantage.

On the side of Ethnology it has to be observed that the word has long been recognised by the Association and the public, that until the last three or four years it was the only word familiar to the English reader, and that it was familiar to educated readers wherever the English language was spoken, and is still far wider known than Anthropology, possibly even on the Continent.

The word Ethnology then has precedent and prescription in its favour; and it cannot be expected that these should not count for something where claims are otherwise anything like balanced.

The Ethnological Society is, relatively speaking, an old established body, universally recognised in the scientific world, untouched by obloquy of any kind, and enrolling among its members, present and past, names of high eminence in science and in society. It has long borne the burden of the science of man, kept it before the world, struggled in its defence, enriched it with its labours, and is now flourishing in its prosperity. Its constitution does not indeed admit of the peculiar activity displayed by the sister society, but then it works according to the principles generally recognised among our scientific bodies, and the same kind of activity is not expected from it, nor is it desirable in the opinion of many.

If the new section is to bear the name of Anthropology, its government must necessarily devolve on the Anthropological Society, which far outnumbers the Ethnological. If the name Ethnology is preserved, there is at least an additional chance that the minority in the amalgamated body will retain some moderate portion of the influence due to their intrinsic character.

Under these circumstances, the Association will have to look to the nature of the two bodies, and consider which is more likely to uphold the dignity and true interests of science. Science is not a thing of majorities, in which mere numbers are of supreme consequence; it is a thing of slow and natural growth, and cannot be created by proclamation, nor forced, like cucumbers, by any amount of hot-bed fostering. It requires time and talent and learning; and these have severally to grow. Six hundred anthropologists in three years and a half may possibly appear to some a rather dangerous rate of increase, especially for a science altogether unformed, and in which there is already a chaos of conflicting opinions; a science, too, which yields to none in the magnitude of its interests, in the depth and difficulty of its

problems, in the antagonisms which it is capable of evoking, or in the mischiefs of which it may be made the instrument under injudicious management. Numbers, no doubt, give resources, but they also give a power which may be wielded by incompetence and rashness, as well as by maturity and wisdom; and therefore we must look to the quality as well as to the size of a body, and to the head as well as to the trunk.

All these different things will certainly be considered, and ought to be considered, in the decision of this question; and therefore "a sufficient amount of papers to support a new section" is not the only point which has here to be thought of.

As to "the annual contempt to which Ethnology has long been subjected at the meetings of the British Association," we must beg to dispute the fact before we discuss it. It is folly for our correspondent to expect that random statements like this—statements which carry absurdity on their very face—can count for anything with any one who thinks, except it be to the detriment of him who makes them.

ANSWERS TO CORRESPONDENTS.

THE article signed *Ethnicus* in our last Number has elicited replies from two of our correspondents; but we feel compelled to decline their insertion, as unsuitable to our pages. If "*Ethnicus*" has misstated the doctrines of Phrenology, let him by all means be set right; but we cannot admit that unintentional errors, or a good-humoured laugh at a disputed doctrine, either require or justify an angry or discourteous rejoinder. Few of our readers can have any interest in mere personal sparrings; and even were it otherwise, we should decline to minister to the feeling. Science requires all the calmness we can bring to its consideration, and justice requires that punishment should be carefully apportioned and graduated. To be judge, jury, and prosecutor all in one is a dangerous privilege, and demands a more cautious use than has here been made of it. In a word, though we can see no sort of objection to a friendly or courteous tilting on all relevant subjects, we really cannot make our pages an arena for the indiscriminate slaughter of Antiphrenologists, or any other Ologists, not even excepting Anthropologists, the most troublesome of all Ologists.

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A MONTHLY RECORD OF

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Criticism will, of course, constitute an important feature in such a work. The various theories of leading writers will be carefully and candidly examined; and, as far as may be practicable, all new publications of importance will be briefly noticed or formally reviewed. Neither will it be content with simply collecting materials and discussing opinions: it will also keep prominently in view the higher aims of every true science—the organisation of facts, and the evolution and application of principles; for these alone can give meaning to phenomena, or utility to knowledge.

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 2. ANNIVERSARY ADDRESS. Delivered before the Anthropological Society of London, January 5th, 1864, by JAMES HUNT, Ph.D., &c., &c.; President.
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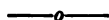
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THE
ETHNOLOGICAL JOURNAL.

OCTOBER, 1865.

ON THE ORIGIN OF THE HUNGARIANS.

BY A. VÁMBÉRY,

Professor of Oriental Languages in the University of Pesth.

My intention is to speak on the origin of the Hungarians. I must confess that I feel anxious not to exhaust the patience of this meeting with a subject which has undoubtedly a far greater interest for us Hungarians than it can have in this country; nor would I venture to touch the subject at all were I not aware of the fact that in England all branches of science are pursued with equal interest, and that this great country never despises the national feelings of others.

The question we are about to treat bears much of the character of a deep and too often of a tedious study of antiquity. But I beg my hearers not to be frightened by appearances. I am, happily, no *savant*, and I hope I shall not become one. The heavy and pedantic style in which philological questions were treated formerly is not fit for the present state of science, and we therefore shall use a language which may be objected to as being *easy* and *superficial*, but which will be more intelligible, and perhaps more suitable to the purpose we have in view.

As you are aware, we are chiefly puzzled to ascertain whether the Hungarians, who belong to the race called Altaic or Turanian, are to be classed with the North Altaic or Finnish, or with the South Altaic or Turco-Tartar stock. To those who look at the question superficially the point will probably seem of little significance; but I must beg of them not to forget that there is the same difference between the several sections of the Altaic race as there is between the component parts of the Iranian or Indo-European race. Englishmen, Frenchmen, Russians, Wallachians, Persians, Kurds, and Gipsies are of the same stock, and have a certain degree of mutual relation; and yet I think no Briton would be indifferent

if, unaware of his Anglo-Saxon origin, he should be assigned to-day to the Gipsies, to-morrow to the Russians, and so on. We Hungarians own that the children of the Celestial Empire, the Mongols, Kalmooks, Kirgis, Finns, Samoyeds, Mordvins, Voguls, &c., are all kindred to us; but nobody will reproach us if, impelled by curiosity, we strive to know the direction in which this relationship is the nearest. Nor is such an inquiry a mere impulse of national vanity: it is simply the desire to penetrate the darkness which hovers over the history of our origin—the wish to get acquainted with the fundamental structure of our language, that inheritance which is the most precious jewel of every nation.

To investigate the origin of a nation we generally use three means—viz., history, ethnography, and philology. From the first we wish to learn the deeds which a nation has accomplished since its first appearance on the stage of the world; from the second we hope to ascertain the physical characteristics, the peculiarities in the manners and customs of the race; whilst the language affords us the most important resource and the best evidence in our inquiries. Although an inseparable whole, the use of these instruments depends very often upon the character of the nations which are concerned in our researches. Thus, for example, we obtain more information, and that more circumstantial, from the Iranian or Semitic races, which were always more peaceful, and had an earlier civilization, than we do from the peoples of Altaic origin, who were from immemorial times of a warlike, unquiet, and ever wandering inclination. Our knowledge of the Ugurs, Maudjoos, or the Siberian populations, will never equal that which we have gained of the Indians, Turanians, Assyrians, and Phœnicians. Such is the case particularly with the Turco-Tartar tribes, which, entirely devoid of any historical resources, made their appearance in the West at a time when people had but very limited and confused ideas in regard to science and scientific researches. It is true that much has been written concerning the so-called Huns and their descendants; but of what use, at the present day, are the data of the Byzantine and Gothic historians? Ancient fables furnish materials for modern anecdotes, but reliable truth is nowhere to be found.

I may be accused of ingratitude towards Priscus, Porphyrogenitos, Iornandes, Sidonius, Apollinarius, and others, but I cannot help saying that all those exaggerated reports of inroads, battles, and devastations have but a secondary interest for us, since we know so little about the nations in question. Hun, Avar, Uar, Khuni, Kutigur, Utigur, are names which might well be taken as belonging to the Altaic race, but we have no precise knowledge whether they represented tribes and branches of one stock or of a different origin. I venture to say that it is even doubtful

whether they used at all the names we apply to them. We call, in this enlightened century, Tcherkes, Kirgis, Tartars, people who have never heard these names, but who designate themselves as Addigi, Kasak, and Turk; who does not see that the like may have occurred in those times of ignorance? Our regrets as to the erroneous conceptions of the above-named historians are of course quite useless; but I think there can be no objection to my saying that Priscus would have done a greater service to posterity if he had transmitted to us only two strophes of the songs he heard on some festival occasion at the court of Attila, instead of giving us a description of the customs and manners of that nomadic prince.

Faint, very faint, therefore, is the light which the historical monuments throw over the ancient relations of the Altaic race and its subdivisions. The Hungarians (Moger or Turcos, as they are called), we are told, appeared in Eastern Europe about the end of the ninth century; the route they took in their migration is also pretty well known; but we have no reliable information concerning the degree of affinity in which they stood to the so-called black and white Huns, or to their kinsmen whom they found already settled on the shores of the Danube and Theiss. Chronological data and the narrative of political events are of great value to the historiographer, but they do not help us to a decision in the present question, and chronology must be cautiously used.

Neither will ethnography, as might have been expected, afford a greater assistance, since physical characteristics and variety of customs often depend upon climatic conditions; and it would be a very vain undertaking to expect to learn from the features of the present Osmanli, Finns, and Hungarians the relations of parentage existing between them and the Chinese Mongols and the inhabitants of Northern Siberia. As regards the aggregate of a race, amalgamation often destroys the traces of unity; but such is not the case in the tribes and branches. I found, for example, in the features of the South Turcoman, who is a mixture of the Iranian and Turanian blood, a striking likeness to the Magyar, in whose veins, too, flows much German and Slavic blood. Such is the case with the Uzbek, among whom the trade in Persian slaves produced a strong crossing of race. This question of the different races is undoubtedly of the highest importance, and careful inquiry might lead to great discoveries, particularly in Central Asia, that cradle of the vast Turanian race. With regard to the variety of customs and manners, it might be pretended that this is rather to be ascribed to the age in which a people lives than to the intrinsic qualities of its special groups or families; and no doubt there is some truth in this. The Nomads in all parts of the world have certain mutual relations in character and habits, as have civilized societies; but we ought not to

forget the peculiarities which various branches and tribes retain in spite of all differences of climate and age. Hungarians and Central Asiatics stand like child and man to each other. Religion, climate, political revolutions, have caused the greatest changes; and yet there are many proofs of resemblance in their manners and customs. This is not here the place to treat this subject circumstantially, but I cannot refrain from quoting some of them. In my travels in Central Asia I was astonished to see how the Turcoman and Uzbeg, although exhausted by thirst and fatigue in our march across the desert, would sit down to make their toilet on their beard, which consisted of plucking the hair from the upper part of the chin (shaving being forbidden by the law of Islam), and giving to the beard the form which, in Hungary, is termed the national fashion, a peculiarity which is also to be found on the statues called Hunnenköpfe in the canton of Argau, representing several colossal heads of the much dreaded Huns. These statues have, besides, a cap in the shape of a pear, edged with fur, which head-dress I have found only amongst the Chinese Tartars and the Hungarians. With regard to the garments of the women, the eye of a Hungarian is forcibly struck by finding on the females of certain tribes in Central Asia the high red boots with pointed heels, the over-dress in the form of a long *huszár* jacket hanging down from the shoulders, and particularly a kind of coiffure, worn only by the girls, called *patta*, in Hungarian *párta*. The Hungarian music, the origin of which the eccentric Pater Liszt ascribed to the gipsies, is also very like the national songs of the peoples who live in the eastern part of Central Asia. Deeply melancholic strains form the beginning, which gradually change into lively movements, and finish with a whirling, dashing bustle. That formulary of an oath—namely, to open a vein and so drink each other's blood—usual with the ancient Hungarians still exists among the Kiptchaks, contrary to the strict prohibition of Islamism; and even the Osmanlis practised this rite until the time of Suleiman the Magnificent, as we are told by the historian Pecheri. Finally, I will mention a kind of national disease to be met with amongst the Hungarians and Central Asiatics. It happens very often that the Tartar, after a full meal, complains of a slight uneasiness, saying, "Kanim ts'oinördü," "My blood is thickened." Of this he is cured by being rubbed over an artery. The Hungarians call this "csömör," and it is subjected to an analogous treatment. With these examples, few in number, yet not to be despised, I do not propose to prove that the Hungarians are in a closer relationship with any particular tribe or branch than with the rest of the Turco-Tartar stock. No; the analogies of customs and manners are, like those of the language, scattered through the *whole* South Altaic stock.

Our present researches aim but to decide the question of Finnish or Turco-Tartar origin, and not that of the relations of the smaller subdivisions.

As for the rest, Ethnography is only a factor of secondary rank; the chief one is undoubtedly Philology, or rather her youngest daughter, COMPARATIVE PHILOLOGY. Languages, the living monuments of the past, are also exposed to the influences of time, climate, and social relations, but only in their exterior form; the interior structure never changes so essentially as to lose all marks of its former character; and it is therefore no exaggeration to say that it is Philology only that offers us the best support and guidance in the slippery path of these inquiries. What Comparative Philology has done in the case of the Iranian and Semitic races is well known; to the Altaic languages it has as yet been but little applied; and I need not say that many discoveries await it in this untrodden ground, and that the history of the Altaic nations will never be completed until this science applies the torch which is to clear the darkness which now surrounds them.

This is not the place to draw a systematic parallel between the Hungarian and Turco-Tartar languages; some brief illustrations will be sufficient for the moment. I will call your attention to the analogy existing both in the grammatical forms and the lexicographical elements of these tongues. Grammar is the soul, the lexicon, the body of a language; there must be likeness in both, and both have a claim to our attention. To meet with features of congeniality between nations so distant from each other as Hungarians and Tartars are is really a striking fact; and I hope you will be indulgent if I quote some evidences illustrative of it. Let us begin with the article, in the Hungarian *az*, *a*, which is originally a demonstrative pronoun, and is to be found in the Turco-Tartar *os' o*, or *os' ol*, "that yonder." Thus, Hungarian, *az a koporsó*, "that coffin yonder;" Turco-Tartar, *os' ol koports'ok*, "that case yonder." In passing over to the substantive we find the Hungarian genitive with *nak* or *nek*, the Turco-Tartar *niuk* or *ning*—as Hungarian, *árpának*, Turco-Tartar, *arpaniuk*, "of the barley." The dative is formed in Turco-Tartar by *ga*, *ge*, or simply by *a*, *e*; in the Hungarian the dative is *nak*, *nek*; but there is another attributive form in *ra*, *re*, or *a*, *e*—as, *mi-ré*, "to what," or "in what," Turco-Tartar, *nige*; Hungarian, *anyárá*, Turco-Tartar, *anaga*, "to a mother." The plural is formed in Hungarian by a *k* throughout; in the Turco-Tartar languages there is *lar*, *ler* for substantives, and *k* for the verbs. The comparison of the adjectives, as well as that of the numerals, also presents many points of agreement. As regards the latter, I may mention that the Hungarians say *iker*, "a twin," in Turco-

Tartar *ikez*, from *iki*, "two;" Hungarian, *négy*, "four," Turco-Tartar, *nila*; Hungarian, *hat*, "six," Turco-Tartar, *ally*; Hungarian, *hét*, "seven," Turco-Tartar, *jetli*. The numeral adverbs are made in the Hungarian by the syllable *szer*; in the Turco-Tartar idioms by *ser*—as, *hétser yetisé*r, "seven times." From the pronouns we cite the personals; as—

Hungarian.	Turco-Tartar.	English.
<i>én</i> ,	<i>men</i> ,	I.
<i>te</i> ,	<i>ten</i> ,	thou.
<i>o</i> ,	<i>o</i> ,	he.
<i>mi</i> , or <i>mink</i> ,	<i>miz</i> ,	we.
<i>ti</i> , or <i>tiék</i> ,	<i>tiz</i> ,	you.
<i>ők</i> ,	<i>olar</i> ,	they.

No one can fail to recognise the striking analogy which exists in this case. The possessive pronoun is, in Hungarian, *enyém*, in Turco-Tartar, *menim*, "my;" Hungarian, *mienk*, Turco-Tartar, *miz nink*, "our." In the vulgar Hungarian, *kend* means "he himself," in Turco-Tartar, *kendi* is "himself."

In speaking of the verb I forbear making comparisons in the case of the tenses. These, in the present Hungarian and Osmanli verbs, are numerous, owing to the progress of the nations in civilization, while the scantiness of tenses in the Chinese-Tartar dialects sufficiently proves the primitive character of the Turco-Tartar verb. The Hungarian verb is also enlarged by German and Latin influence; and, although the development is strictly national, the forms must be always looked upon as foreign elements. The infinitive, in the Turco-Tartar idioms, is *ma* or *me*, sometimes *na* or *ne*; in Hungarian it is *ni*. The perfect is formed in both languages by *d* or *t*, as:—

Hungarian.	Turco-Tartar.	English.
<i>jár-t-am</i> ,	<i>bar-d-um</i> ,	I am gone.
<i>jár-t-unk</i> ,	<i>bar-d-uk</i> ,	we are gone.

The gerund is *ban*, *ben*, or *ván*, *vén*—as Hungarian, *jár-ván*, "going," Turco-Tartar, *bari-ban*.

As for the personal suffixes, which, in both languages, are annexed after the particle of the tenses, we find some in accordance and others not; as—

Hungarian.	Turco-Tartar.	English.
<i>jár-sz</i> ,	<i>bara-szen</i> ,	thou goest.
<i>jár-j-unk</i> ,	<i>bara-l-unk</i> ,	we may go.

These illustrations, we are aware, are too few to give a just idea of the

grammatical analogies which exist between these languages. The subject must be treated in a more extensive way, and the various conjugations of the Turco-Tartar verb must be collected and well arranged if our assertion is to be fully borne out. After the verb let us look at the post-position (the Altaic languages have no preposition), and we shall see —

Hungarian.	Turco-Tartar.	English.
<i>elé, elött,</i>	<i>eli, eldi,</i>	before.
<i>alá, alatt,</i>	<i>ali, alti,</i>	under.
<i>mellé,</i>	<i>bele,</i>	next.
<i>hoz, hez,</i>	<i>kas',</i>	to.
<i>hol, töl,</i>	<i>dan, den, din,</i>	from.
<i>ba, be,</i>	<i>da, de,</i>	into.
<i>közé,</i>	<i>kali,</i>	amongst.

In the adverbs we shall only point out the striking resemblance between the Hungarian *hátra*, “back,” and the Turco-Tartar *kajtru*, and between the Hungarian *előre*, “forward,” and the Turco-Tartar *eleru*.

In touching the question of analogy, in the *treasury of words* it will be well understood that the comparison of *entire* words is a mistake in every language, but particularly so in those of the Altaic race, where root, stem, and particles form distinctly separate parts. It may occur that some words remain in an unchanged state for long periods; but these are only rare cases, and must be always taken as linguistic wonders. If we find in—

Hungarian.	Turco-Tartar.	English.
<i>arszlán,</i>	<i>arslan,</i>	lion,
<i>buzogány,</i>	<i>buzdogan,</i>	mace,
<i>söpörni,</i>	<i>söpürme,</i>	to sweep,
<i>tanu,</i>	<i>tanuk,</i>	witness,
<i>tengel,</i>	<i>tingil,</i>	axe,
<i>tenger,</i>	<i>tengiz,</i>	sea,
<i>keresni,</i>	<i>karas'ma,</i>	to search,

we cannot adopt it as a general rule that every analogy must be of the same nature, of the same precision. Sometimes we meet with words in which the roots resemble while the particles differ; as—

Hungarian.	Turco-Tartar.	English.
<i>koros,</i>	<i>koron,</i>	old, aged,
<i>korcs,</i>	<i>kortság,</i>	extravagant,
<i>szán,</i>	<i>sanak,</i>	sledge,
<i>késő,</i>	<i>kets',</i>	late,
<i>turul,</i>	<i>turun,</i>	hawk,

—and very often we find words which are quite analogous, but are modified in signification ; as—

Hungarian.

csákány, a hatchet with a long handle ;
ige, word ;
kar, arm ;
szekér, carriage ;

Turco-Tartar.

tsákan, a halberd-like weapon.
iidsé, discussion.
kor, hand.
tscker, everything fit for the
 transport of a burden.

The relations of affinity between the Hungarian and Turco-Tartar idioms are so deeply impressed, so much ramified, that I think it quite impossible to undertake the etymological analysis of the one language without the assistance of the other. This connection is, besides, highly interesting in a philosophical point of view, from the logical sequence with which the developments from the root take place. We used to be astonished at the masterly structure of the Arab verb and its derivations. Must it not also strike us to see the same advantages in the languages of the Altaic race—a race whose peoples are even now at the lowest degree of the social state ? I shall quote only two examples :—1. The root *tüz*, or *sziz*, or *kiz*, which bears the general expression of “hot,” “violent,” “fiery ;” and we see the following family of derivations :—

Hungarian.

tüz, fire ;
szüz, virgin ;
küzdeni, to fight, to endeavour,
 to strive ;

Turco-Tartar.

kzy, heat, fire.
kyz, girl, virgin.
kyzdamuka, to come in fire,
 to be ardent.
kzyk, fiery, violent.

2. The root *jog*, *jok*, *gyogy*, with the general signification of “right,” “convenient,” which is to be found in

Hungarian.

jog, the right, the law ;
jó, good ;
józan, sober ;
jobb, the right hand ;
gyógyulni, to recover ;

Turco-Tartar.

jakis, right, convenient.
jakai, fine, right.
ejü, good.
ejuk, sober.
szag szog, the right hand.
sag, sound.
sagolmak, to recover.

This ramification of the Hungarian and Turco-Tartar languages will sufficiently prove how difficult it is to determine the precise degree of affinity

existing between them. As far as my own experience reaches, I have hitherto found but a very small number of roots which do not show that mutual connection which I hope to make evident when time and leisure allow me to lay before the world my researches in the Turco-Tartar languages in due form, and in their whole extent.

From all I have here said in regard to affinities both of customs and languages, it will easily be understood that I allude to the relationship of the Hungarians with the peoples of the South Altaic or Turco-Tartar stock, to whom they certainly stand much nearer than to the North Altaic or Finnish races, who have left their ancient seat at a much earlier period.

The Finnish tribes have also retained marks of their common origin, and show many affinities in language, but not on such a large scale, not in such a striking manner. We cannot remain indifferent to resemblances in words which must date from the earliest periods of social life—words necessary to express the primary wants of man. If we take, for example—

Hungarian.	Turco-Tartar.	English.
<i>sátor,</i>	<i>fsatir,</i>	tent,
<i>ökör,</i>	<i>öküz,</i>	ox,
<i>csárda,</i>	<i>tsárta,</i>	a tent on four poles,
<i>balta,</i>	<i>balla,</i>	hatchet,
<i>vaj,</i>	<i>maj,</i>	butter,
<i>béke,</i>	<i>bike,</i>	peace,
<i>turó,</i>	<i>tunak,</i>	cheese,
<i>betű,</i>	<i>betik,</i>	a letter,
<i>domb,</i>	<i>dombak,</i>	hillow,
<i>kék,</i>	<i>kök,</i>	blue,
<i>sárga,</i>	<i>szarig,</i>	yellow,
<i>nyár,</i>	<i>jaş,</i>	summer,
<i>tavas,</i>	<i>lomos,</i>	spring,
<i>ősz,</i>	<i>gös,</i>	autumn,

it would be difficult to pretend that these, and their number might be greatly increased, are only accidental coincidences. The truth of our assertion can, besides, be proved by the fact that the more ancient the linguistic monuments of the Hungarians are, the greater is their likeness to the Turco-Tartar idioms of Central Asia. These monuments are, I am sorry to observe, only single words or *nomina propria*, but, for our inquiry, they are of a high importance, since they trace, so to say, the

historical march of events in remote times, and show the connections which one people has had with another. Whilst, on one side, the words of Turco-Tartar origin give us some idea of the relations of the ancient Hungarians to the Huns, Avars, and Khazars, we learn from others, of Persian extraction, the evidences of a connection between the Magyars and the Persian population living to the south of the Caspian and Black Sea. The Parsee civilization of those remote ages extended far over the whole of Central Asia: there must have been a mutual intercourse between the wild Turco-Tartar tribes bordering on it from the north and the settled Persian inhabitants. It is particularly in social and religious conditions that the former have borrowed much from the latter. The foreign institutions or instruments were introduced with foreign words, which have remained till the present time in a very striking state of preservation. I shall only quote some of them. We find, for example—

Hung.	Pers.
<i>Isten</i> , God.	<i>Izdan</i> , God.
<i>ármány</i> , craft, cunning.	<i>Ariman</i> , the spirit of evil.
<i>nap</i> , sun.	<i>nab</i> , clear, bright, shiny.
<i>méreg</i> , poison.	<i>merg</i> , death.
<i>kard</i> , sword.	<i>gord</i> , knife, dagger.
<i>paiza</i> , shield.	<i>pus'</i> , the cover.
<i>pajtás</i> , friend.	<i>pajdas'</i> , friend.
<i>banya</i> , an old woman.	<i>banu</i> , old woman.
<i>bátor</i> , brave.	<i>bahadur</i> , vulgar; <i>badir</i> , brave.

Not less is the number of *nomina propria*, not only in the Hungarian, but even in Hunnic and Avar historical monuments, of which the Persian origin cannot be doubted. Thus we meet with such words as—

Hung.	Pers.
<i>Aladar</i> , son of Attila;	<i>alajdar</i> , the ensign on the head of a troop;
<i>Bendegucz</i> , a Hungarian chief;	<i>bende gas</i> , the slave of the drum;
<i>Balamir</i> , a Hungarian chief;	<i>bala mir</i> , the high chief;
<i>Tuhutum</i> , a chief renowned by his strength;	<i>Tuhutum</i> , the Hercules of Persian fable;

and many others, which we hope to publish in parallel columns, after having made the collection as complete as possible.

We scarcely need say that the intercourse between the Iranian and Turanian races of the earlier periods has also left strong traces in the

Persian, and particularly in what we call the new Persian language. This fact has hitherto escaped the attention of our Persian scholars; and many words of pure Altaic origin are presented as belonging to the Iranian tongues. But a deeper inquiry into the etymology of the Turco-Tartar languages will make essential changes in the opinions held on this point.

MAN, SAVAGE AND CIVILIZED—AN APPEAL TO FACTS.

THERE are two broad facts relating to mankind which form the real basis of the most important ethnological or anthropological speculations. These are the actual existence of men in two very opposite conditions—namely, the existence of men who are civilized, and the existence of men who are savages.

These great distinctions are, perhaps, more important, when we consider man as a whole and in all his relations as a moral, physical, intellectual and social being, than even the marked outward race-characteristics of mankind as exhibited in the Caucasian, American, Mongolian and Ethiopian races. For, though the Caucasian, or white races, might broadly be taken as representing civilized man, and the red-skins and yellow and black races might all be classed as more or less savage, such a rough classification could not be maintained:—with the evidences of ancient civilization in Central and, perhaps now I may say, in North America, we could not hold that the red-skins have always been savages; while the civilizations of the Egyptians, Chinese and Hindoos equally refute the assertion with respect to some of the black and yellow races. On the other hand, our own past history, to seek no further, forbids our claiming for ourselves the distinction of having always been in a state of high civilization. And there is probably a greater similarity between men of all the varied races, while they are in a savage state, than there would be between men of an identical race when savage and when civilized. The physical race-characteristics of a people might not much differ through such a change in their condition,—or, let us say, rather, the physical differences would be only and literally superficial; whereas we must admit, that the differences in a people when savage and when civilized, if regarded in a mental, moral and social point of view, are well-nigh infinite.

It might further be argued—as, indeed, has been done by Blumenbach and other anthropologists—that, though we may divide mankind, by so-called race-characteristics, into four or five principal varieties, there are, in fact,

innumerable varieties of mankind which shade off or run into one another by insensible degrees, so that we cannot determine where to draw the line distinctly between one variety and another. From which consideration, indeed, Blumenbach arrived at this conclusion—"That no doubt can any longer remain but that we are, with great probability, right in referring all and singular as many varieties of man as are at present known to one and the same species." (Blum. Works, p. 276.) But, even were this the case—which, however, I will not here assume, though I do agree with it—we should still have to explain or account for, as best we may, the two great facts which I have said constitute the more important distinctions between man and man throughout the world—namely, the present existence of savages and of men who are civilized—from the existence of which, indeed, we are almost forced to speculate as to which of these conditions was probably that of the primitive man.

Without at all endeavouring to exhaust this great subject in the present communication, I think the time has arrived to put forward some salient arguments, in brief, that ought at once to be answered, in order to prevent unfounded assumptions becoming inveterate, and "the science of man" degenerating into a baseless unreality. The more definite the issues I raise, the better will their truth or error be detectable. And I know no better place in which to put them forward than the new *Ethnological Journal*, edited by the well-known originator of the previous and first *Ethnological Journal* published in this country, who again most chivalrously challenges the freest and most full discussion.

My own predilections, as already hinted, are in favour of the unity of mankind, however distinctive races may have been developed. I hold this, though not a Darwinian; or, more properly, perhaps, I should say, because I am the reverse of a Darwinian—that is, I hold that probably new species (so called) may have been developed, like varieties; not, however, in the ascending scale, but always by a kind of degeneration. And so, holding that most probably mankind sprang from a single pair—the Adam and Eve, in short, of our Christian traditions—I also, consequently, hold that the first man and first woman, as they came fresh from their Creator's hands, were perfect of their kind; and, if not "civilized," in our modern, vulgar and technical sense, yet that they were endowed with the highest intellectual capacity, and the highest moral sentiments, and enjoyed completely and superlatively this *mens sana in corpore sano*. This is, of course, to be essentially "civilized" in the only possible sense for a new-created rational being, before man's "many inventions" were discovered. It accords with Solomon's declaration, that "God hath made man upright," but I advance it here simply on rational grounds; and I ask the idea, in

the first instance, to be entertained, in order to test it, and merely as an hypothesis. I assume one thing as not in question—namely, that man had the same Creator as the world and the inferior animals; and, as I know of no imperfect lower animal (save as an exception that would prove the universal rule of the perfection of what we call “nature”), I argue that by nature man also was in perfection originally, whatever he may since have become. Every inferior animal, whether beast, bird, fish or insect, being perfect in its instincts, the great solecism in life is savage man, or the civilized man who degrades himself.

But “this is but ‘an old tradition,’” it may be objected, which many ethnologists have now put aside, because in the teeth of all our discoveries of savage races, distinctive in almost every respect, found dispersed throughout the world.

Now it is on this very point I venture to join issue with the objector, and appeal to facts. That there are, apparently, facts on both sides, of course I admit; for that is why there is a question at all. Nay, I go further, and frankly say that, apart from our traditions, the ostensible facts are in favour of the objector, and that the *onus* rests on us to disprove them. No doubt iron is stronger than wood; but yet, in the old canoes found buried in the alluvium of the Clyde basin, the iron bolts had all been eaten away, while the wooden pegs remained.¹ And so, the fact of the new discovery of savage peoples in modern times by no means must be taken, rashly, as disproving an anterior civilization among their ancestors.

Appealing, then, first to all the facts of history,—I say that civilization, so far as we have knowledge, is actually older than savagery. It is a remarkable circumstance that little or no definite reference is found in the oldest books, to peoples so savage and degraded as those discovered in more recent times. Taking “the Bible like any other (historical) book,” the earliest accounts we have in it, of men in communities, relate to men as builders of cities, as workers of metals and inventors of musical instruments, as soon as, or even before, they dwelt in tents or became hunters or shepherds. In the narratives of the father of secular history, also, we have the history of civilization, though of civilization more or less advanced, and more or less corrupt. But Herodotus tells us little or nothing even of the existence of absolute savages. I venture to say that it might be a fair thesis to maintain—however startling some may regard it—to endeavour to prove that, in the earliest periods of which Herodotus speaks, man had not yet degenerated so far as to have reached a savage condition; and that even the Negro was then exclusively civilized while under domes-

¹ Lyell's *Antiquity of Man*, *in loc.*

tication, and became the wild savage he now is in littoral Africa only in later times, and *after* the commencement of the historical period!

This thesis, could it be established, would be a most important one; but I will not attempt this here, because there is an argument of more importance still, which claims priority as the major proposition in this inquiry; and to it I will now briefly allude. You will observe that I am purposely leaving my first argument, derived from an appeal to the facts of history, very incomplete. I have myself come to the conclusion, on inductive grounds, and judging from all the knowledge within my power, that civilization is older than savagery. I do not, however, say that I have proved this, or indeed attempted it here. I have but thrown out the hint at present that I think it provable.

The thesis I now venture especially to maintain is, not only that civilization is older than the savage state, but that it *must* be so. *Here* I appeal to all our knowledge of mankind, moral, social and metaphysical, as well as to all the facts of history, both as regards the course of civilization throughout the world and all that we know of savage races. And here, fortunately for the space you might be able to allow me, the *onus* fairly rests upon the other side. I need scarcely do more than state my propositions.

Setting out, then, with M. Guizot's famous sentence, that "Civilization is a fact," I argue, from its very existence now, that it must always have existed since man was. We are not here, of course, concerned with minor details respecting the various phases into which civilization may have been developed. I speak of "the civilized man" only as an elevated, intellectual and moral being, apart from his peculiar circumstances.

I argue that civilization (in this proper sense) must always have existed since man's creation:—First, because I am not aware of any civilization in the world which has not either always existed among the civilized race from time immemorial, or has had its origin attributed to the prior civilization of another race, brought *ab extra* to the race becoming civilized. But I may add, that it can scarcely be said we know of any people in an utterly savage condition who have been thus civilized by a higher race. We can scarcely consider that the Greeks were "savages" before the introduction among them of written language and Egyptian civilization; nor that the Britons (with their chariots) were savages when invaded by the Romans. But, be that as it may, the civilization of Egypt and of Rome had at least a prior existence; which is enough for my main thesis.—And, Second, because we know nothing of any truly "savage" race having risen itself to a state of civilization; while it is questionable whether there is any thoroughly savage people that can be said to have become civilized

through the influence of a superior race. But, even could such a case be adduced, it would not of course disprove the priority of civilization. The real point to be established by those who dispute my position is *the proof that savage races can civilize, or have ever civilized, themselves.*

When Mr. Crawford's paper on the Negro was read in Section E of the British Association at Birmingham this month (September 1865), I challenged him to bring forward a single instance of this kind. He was ominously silent. I give him another opportunity now of enlightening us upon this point. I think most men who know that distinguished ethnologist,—how he revels in discussion and delights in cutting up an adversary in argument (always with the most perfect good-nature),—will understand why he was silent under such a challenge. It is clearly not for me to "prove the negative."

But even this I will almost go nigh to accomplish. For I allege, Thirdly, that among all savage races there are traces, more or less, of an anterior civilization or superiority of condition, that further testifies to their being now in a literally *degraded* state. Even the legends of the Viti islanders and the superstitious traditions of the Negroes testify to something in their ancestors at least superior to themselves. But I must not here pursue what would necessarily be the prolonged proofs of such an argument.

I hurry on, therefore, to say, Fourthly, that not only in Mexico, but now even on the banks of the Ohio and Mississippi, the archaeological or geological proof is all in favour of an anterior civilization having existed even where "the noble savage ran" in later times.¹ And, finally, have we not, in the history of the Bosjesmans, almost an illustration before our eyes in historical times of how a new savage race may result from degeneration? Nay, let me ask, in conclusion, What mean all the efforts among ourselves, whether in our nurseries, our schools, or reformatories, unless to prevent that degradation and degeneration to which we know fallen man has ever been prone, and from which nothing can ever raise or save him, if not the efforts of his fellow-men who have not as yet degenerated?

J. R.

¹ Since this sketch-article was written, I have had the pleasure of reading the *Introduction to the Principles of Mythology*, by Mr. Luke Burke; from which I beg to be allowed to make one brief citation bearing appositely upon my whole argument: viz.—"The islands of the Pacific, under a general appearance of primeval simplicity, present here and there many remarkable evidences of a former civilization, as well as of a degree of connection between the several populations, which seems inconsistent with their present isolation." (p. 51.)

ETHNOGRAPHY, ETHNOLOGY, AND ANTHROPOLOGY.

SOME twenty years ago there was established in London a Society for the cultivation of the Natural History of Man, which took the name of the Ethnological. For some years it was conducted with zeal and spirit; and from 1848 to 1856 it published four volumes of Transactions. After this it became rather drowsy, and for four years published nothing at all. In 1860, however, it resumed its activity, increased its numbers, and improved its finances, and up to the present time it has published three volumes of Transactions, favourably spoken of by the leading members of the public Press. At the moment when this prosperity was attained a schism took place among its members, and the Anthropological Society was established, the two Societies having the very same object in view. The cause of the secession has never been very satisfactorily explained. In their first annunciation to the public the seceders described themselves as "the more advanced section" of the Ethnologists, giving the world to understand that the progress of science necessitated their quitting a laggard body that refused to move on. This ground, however, seems afterwards to have been abandoned; and the cause of the secession is ascribed, in an authorized publication, to the fact that the Ethnological Society, following the example of the British Association, admitted ladies to their meetings when papers were read and discussions took place to which ladies might listen.

Ethnology, in conjunction with Geography, has at the British Association a separate section, to which papers, whether under the name of Ethnographical or Anthropological, are equally admissible. This does not satisfy the Anthropologists, and they insist on a separate section to themselves; and having brought the question on at three different meetings, they are as often defeated, the Association being satisfied that there is already room enough for them, and it being found impossible to persuade them that an impalpable difference in the etymology of three words constitutes an essential difference in the object they equally represent.

If the reader is not edified he may be, at least, amused by a few samples of the arguments employed by the Anthropologists in their attempts to establish a separate section for themselves. Those which were, for the most part, repeated at the Birmingham meeting are to be found in the last Annual Address of the President of the Anthropological Society, by far the greater part of which is, indeed, devoted to this subject. "We shall see," says the President, "that the chief objections made to the recognition of our science are entirely based on a mistaken interpreta-

tion of the extent and object of it, and of the history and etymology of the term Anthropology." After this presumed objection, Dr. Hunt proceeds to dilate on the manifold virtues of the word Anthropology, while he deliberately proposes to banish the word Ethnology from the republic of letters and science. "Personally," he remarks, with a becoming modest candour, "I may frankly admit that my investigations have led me to believe that the word Ethnology had better be expunged from the nomenclature of our science."

The first use of the word Anthropology is of venerable antiquity, for it seems to have been the title of a book published at Leipsic, in the year of our Lord, 1501. The author of this book must necessarily have been born and bred in the 15th century, that is, within the strict limits of the dark ages. His name was Hundt, which, by the elision of a single, and seemingly redundant consonant, makes it one and the same with that of the learned President of the Anthropological Society. But he was, also, sometimes called *Magnus Canis*, in English, "Big Dog." May not the President himself be a descendant of this great man in the 12th generation?

After so proving the antiquity of the word Anthropology, we find in the Address a series of authorities for it, ranging over 365 years; and among them the English dictionaries of Bailey, Johnson, Sheridan, and Walker, every one of which notoriously copied from its predecessors. Then we have a number of encyclopædias referred to, in which the word Anthropology is found, but not Ethnography or Ethnology: and no wonder, since, until forty years ago, the branch of knowledge which they are intended to represent, had no existence as a separate study. Throughout, the interpretation of the word Anthropology has reference to anatomy. Thus, the work of *Magnus Canis* is admitted to be but a crude treatise on anatomy. The definition of Bailey, the precursor of Johnson, is "Description of a man or man's body," and Johnson's own definition is "The theory of anatomy."

Trifling seems to be pushed to the last degree in the two following examples: "Anthropology," says the Address, "is recognised as an English word in Tod's Johnson; Ethnology is not." Tod's edition of Johnson was published in 1818, or forty-seven years ago; and the Rev. Mr. Tod, who was librarian to the Archbishop of Canterbury, could have no knowledge either of Anthropology or Ethnology, as the branch of science which they express had no existence when he wrote. The word had been introduced into English dictionaries eighty years before; but whether that made English of it is more than we can venture to assert, for even Johnson quotes no good authority for its use, and seems only to have copied from

his predecessors. The next great discovery of the Anthropologists is thus expressed in the Address: "The word Ethnology does not occur in the seventh edition of the *Encyclopædia Britannica* for 1842," although the word Anthropology does. A little more reading—perhaps even a little more candour—ought to have led the learned President to look into the last edition of the same work, published eighteen years later, for there he would have found an elaborate treatise on "Ethnology," his own much-loved word being considered to represent but a mere subordinate branch of it.

Such verbal discussions as the Anthropologists delight in may be instructive to etymologists, but are of little or no value to science. To find that Anthropology fifty and even 350 years ago meant anatomy, while it now means the natural history of the human race, is of no more value than to know that the poetical English word "harbinger" is derived from the very unpoetical word for a Dutch tavern-keeper; that *Hamburgh*, designating a variety of the vine, is a corruption of *Alhambra*, or that *Jerusalem artichoke* comes from the Italian word for a sunflower. From word-catchers, then, we appeal to common sense. Any one of the three words under consideration would be good enough had we no choice, and whether they are composed of the Greek words which signify "man" or "people," and a writing or a discourse, seems in common sense a matter of perfect indifference. A scientific term, however carefully selected, will never contain the definition of a science. Substantially, geography and geology have etymologically equivalent elements, but they express two distinct sciences. So it is with astronomy and astrology, the one expressing a grand science and the other a great delusion. Chemistry and the search for the Philosopher's stone have the same etymology.

Of the three words, *Ethnography*, *Ethnology*, and *Anthropology*, the most eligible is the one in most familiar use, and the shortest. They are all too long; and in this sense the last, which exceeds the two first, is the most inconvenient by a whole syllable, or, to use a commercial phrase, by twenty per cent.

It is, indeed, from its tediousness, so unsuitable to the genius of Anglo-Saxon pronunciation, that, out of doors, two of its syllables have been lopped off, and it becomes "*Anthropo*," an awkward word, no doubt, yet better, from mere brevity, than its ugly lumbering parent, which no length of use will ever reconcile to English tongue or ear.

For ourselves, we should have preferred *Ethnography* to *Ethnology*. It was first employed nearly forty years ago by the late eminent Italian geographer Balbi; whereas, the first use of the word *Ethnology* was by the French as late as 1839, when they formed the Ethnological Society of Paris. A few years later, following the French, we established the Ethno-

logical Society of London. In the troubles of the last French Revolution, the Ethnological Society of Paris, without becoming extinct, became moribund, and then a new Society was formed, which gave the first example of an Anthropological Society. This was the example which was imitated two years and a half ago in London, and the President and Council of which have made all the verbal fuss which we have endeavoured now to describe.

ETHNOLOGICAL PROCEEDINGS OF THE BRITISH ASSOCIATION.

THE Ethnological portion of the business of Section E at the late meeting of the Association commenced on Thursday, September 7th, by the reading of M. Vámbéry's paper on "The Origin of the Hungarians." This paper is given in full in preceding pages.

MR. CRAWFURD dissented from the views expressed by M. Vámbéry as to the Asiatic character of the Hungarians; he considered them as essentially a European people, whatever foreign intermixture there may have been in remote times, and he amusingly insisted on the striking physical and mental differences between them and their supposed Mongolian ancestors.

MR. BURKE also expressed his conviction of the absolutely European nature of the Hungarians of the present day, even assuming the full accuracy of what the medieval chronicles tell us of the invasions of Attila and his Huns. He alluded to the readiness with which an invading people becomes absorbed by the natural laws of intermarriage, so as finally to leave no trace of its existence, and contended that in every point of view, mental, physical, and social, the Hungarians were an integral element of the European family, and far too high a people to be confounded with any Asiatic nation; and he pointed to M. Vámbéry himself as a triumphant refutation of his own theory, asking if it could have ever entered into an Asiatic brain to brave the toils, difficulties, and dangers which he had faced and overcome for a pure idealism—that of discovering the origin of his race, and the traces of its early history and languages.

DR. RONAY, having been called upon, said that he could not speak to the paper of his friend M. Vámbéry, as he had only heard the few concluding sentences of it; but, in thanking Mr. Crawford and Mr. Burke for the high and kind terms in which they had spoken of his countrymen, he

still was unable to agree with their conclusion, as it was his conviction that the Hungarians *were* an Asiatic people.

MR. CARTER BLAKE combated some of the theories advanced by Mr. Crawford; and Sir Henry Rawlinson, the President of the Section, summed up the discussion, and explained that the object of M. Vámbéry's travels had been to elucidate the very obscure point of the origin of the Hungarians. In 1500 we know that the Hungarian language was spoken on the Volga, but the real question was as to their previous history. He himself inclined to the belief that the Hungarians belonged to the Northern, not to the Southern Altaic races.

M. VÁMBÉRY then replied, adducing various instances of similarity between the Hungarians and the Turco-Tartars; after which Mr. Crawford took the chair, and a paper by Colonel Phayre, on "The Ethnology of the Hindu-Chinese Nations," was read and discussed. Of this paper we have seen no report.

On Friday, the 8th, the first paper read was by John Crawford, Esq., President of the Ethnological Society,

ON THE PHYSICAL AND MENTAL CHARACTERISTICS OF THE AFRICAN OR OCCIDENTAL NEGRO.

MR. CRAWFORD observed that by the term "Negro," in so far, at least, as it is applicable to Africa, we understand a human being with the hair of the head and other parts of the body always black, and more or less of the texture of wool, with a black skin of various shades: dark eyes, a flat face, depressed nose, jutting jaws, thick lips, and a large mouth, with oblique incisor teeth. To this is to be added a peculiar odour of the skin, offensive to and unknown in the other races of man. The form of the skull, in so far as it is in the brain-case, cannot, I think, be insisted on as a criterion of the African Negro, for I do not believe it has any characters by which it can certainly be distinguished from the skulls of nearly-allied races, such as those of the Abyssinians and of the Oriental Negroes. The true African Negro is of the average stature of Europeans, and perhaps even of their average physical strength, and, in this last quality, is the only race of man that is so.

The word "Negro" is obviously a corruption of the Latin adjective for "black," and in its present sense was probably first employed by the Portuguese to designate the race of man, to them new, which they found on the western coast of Africa in the prosecution of their discoveries in the fifteenth century. To the people of Europe, both of antiquity and the Middle Ages, the Negro was as little known as the Hindu or Chinese; but

he was immemorially known to the Egyptians, the Jews, the Arabs, and the Persians—most probably always as a slave.

The continent of Africa, reckoning on its western side from the southern limits of the Great Desert to the Tropic of Capricorn, and on the eastern from the equator to the 33rd degree of south latitude, is inhabited by the Negro race. To the south of the limits mentioned, we exclude the squab, yellow Hottentots, although with woolly hair: and to the north, the Abyssinians, the Samauli, and the Galla, who have crisped long hair, and elevated features, albeit of dusky or black complexions.

Although all African Negroes partake of the general character I have now ascribed to them, there is still much diversity, consisting chiefly in the greater or less predominance of the typical features above enumerated. Thus the protuberant jaws, the flat nose, the thick lips, and black colour appear in their most exaggerated form in the Negro of the Guinea Coast, but in a greatly mitigated one in the Kaffirs of the eastern.

Quitting the continent of Africa, the first considerable deviation from the general Negro characters is found in Madagascar, an island about three times the extent of Britain. The native of Madagascar, still a Negro, is slenderer in person than the continental Negro. He has usually woolly hair, but not unfrequently hair that is long and crisp. . . .

After this brief account of the distribution and of the physical form of the African Negro, I shall endeavour to sketch his intellectual character by comparing it with that of the other races of man. As we know nothing to the contrary, we may assume that all the races of man are of equal antiquity, or that, in so far as mere time is concerned, every race has had the same length of time for making advancement in civilization. The great diversity of social conditions in which we now find them must therefore depend on quality of race or on difference of opportunity. The Negroes of Africa are unquestionably the most advanced of all the woolly-headed races. They have been immemorially in almost exclusive possession of the greater part of a vast continent, most of it within the tropics, but a considerable part also in a temperate climate. The region they inhabit is certainly not, compared to some other parts of the globe, peculiarly fitted to foster an early civilization; for it is too unbroken a mass, having a broad desert to the north, and a wild, unsheltered coast, far from civilized man, to the south. Yet it is not without its advantages. In the interior it has some great navigable lakes, and on its western side, although not on its eastern, it has several good navigable rivers, although these indeed be, in magnitude and length of course, far from equalling those of Asia, of America, or even of Europe.

The Negroes of Africa, ever since they have been known to civilized

man, have been in possession of the ox, the sheep, the goat, the horse, the camel, the hog, and the dog. As long as we have known them, they have cultivated millet, pulse, and rice, and, since the discovery of America, maize; while the cotton-plant is either indigenous to their own country or time out of mind was introduced from India. Wherever they have been seen by Europeans, they have been found in possession, however rudely exercised, of the art of fabricating malleable iron; and gold is the product of several parts of their country. On the western coast the Negroes have been in communication with the civilized nations of Europe for four hundred years; on the eastern with the Arabs and Hindus immemorially.

Let us note, then, the kind of civilization which has grown up with the African Negro under conditions far more advantageous than with many other races. It would be needless to compare the civilization of the African Negro with that of the races of Europe. They have not even reached the civilization of the other races of their own continent. They have not only not reached that even of the second-rate nations of Asia, but they are far below that of the third-rate civilization of that continent and even of its islands. Their agriculture is rudimental and unskilful to the last degree; and their arts are confined to the manufacture of a coarse pottery by the hand, to the weaving of a very coarse fabric from cotton, and to the fabrication of malleable iron.

One remarkable example of the obtuseness of the African Negro, although referred to on a former occasion, deserves to be repeated. The elephant is more abundant in the country of the Negroes than in any other part of the world; yet they hunt it only for its flesh and its tusks, and have never tamed and reduced it to servitude, as have done all the nations of Asia in whose country it is indigenous. The African elephant is, indeed, a distinct species from the Indian, but is equally amenable to domestication, as is sufficiently attested by the well-ascertained fact of the African being the elephant domesticated by the Carthaginians, a people of Asiatic origin, whose example the African Negroes have not had the capacity even to imitate, for at the present day a Negro has no more idea of the possibility of taming an elephant than he has of taming an alligator.

Negro literature is an absolute blank. No Negro people has ever invented letters, symbolic or phonetic, and rarely have Negroes adopted the writings of other races. The achievement of inventing an alphabet has been accomplished by other races on their own continent, as in the examples of the Abyssinians and ancient Mauritians; and it has been performed in Asia and its islands by nations of second and even third-rate civilization, as in the case of the Javanese, Sumatrans, and Luconians,

but never by a Negro people. "There is," says Consul Burton, speaking of Ashantee, "the usual African want of invention : a plough, a saw, an alphabet, are equally beyond the limits of their organization."

Architecture, in any scientific sense, is equally a blank with letters. The dwellings of the Negroes, and even the palaces of Negro kings, are ever of poor temporary, perishable, materials. The art of making bricks, or hewing stone, seems to be unknown to all the purely Negro nations of Africa. From one extremity of the land of the Negro to the other there exists no monument of enduring materials, no temple, no tomb, not even a bridge. The single exception consists in mosques, with walls of mud and thatched roofs, and these only in very few localities, where the Negroes have intermixed with Arabs, and adopted the religion of Mahomed. The religion of the Negroes would be better named witchcraft, with wizards for its priests. It has no doctrine, no ritual, no temples; hardly even graven images. No prophet has ever risen among them to bestow upon them a systematic and coherent belief. Incantations, with human sacrifice, accompanied with libations of foreign "fire-water," must be reckoned as included in it.

The wars of the Negroes are but the incursions of savages, and their government the rudest form of a despotism, the most absolute and unrestrained. Among no people is human life held so cheap, as is evidenced by the slavery both of the western and eastern coasts, and by the human sacrifices of Ashantee and Dahomey.

The Negroes of Africa are eminently a home-keeping, unadventurous race. Neither war, commerce, nor colonization has tempted them to transgress their native bounds. Unambitious and unenterprising, they have, notwithstanding, become involuntary colonists on a great scale. In America and its islands, which before knew no indigenous Negro race, there now exist probably not fewer than twelve millions of African Negroes, a considerable number of whom are free, but the majority still in the same state of slavery in which they were when first imported.

The emancipated Negroes, living among Europeans, still pursued by the proscription of race, are under political and social disabilities, and looked upon as outcasts; in fact, as a nuisance, of which the commonwealth ought to get rid. In our own colonies the antipathy of race is as strong as in America; but social and political proscription is not carried to the same length, and the freedman is more his own master. Notwithstanding their emancipation, however, the Africans of our colonies, instead of increasing rapidly like the bondsmen of America, increase very little, if at all. Their numbers are, in fact, understood to be kept down, not by want of the means of subsistence, but by a promiscuous intercourse of

the sexes, by infanticide; with corresponding vices, and the neglect of children.

The facility with which the African Negroes submit to slavery, even their contentedness—nay, their cheerfulness in servitude—seems far to exceed that of any other race of man. This temper is evinced not only in their own country, and abroad under foreign masters, but even under masters less civilized than themselves. Thus, at present, some of the tribes of the Red Indians, who have made some advance in the arts of civilized man, are found in possession of Negro slaves.

Some writers have, in my opinion, very idly imagined that the African Negro made some approach to the anthropoid apes, forming, as it were, a link between man and monkey—a fancy as unfounded as it would be to insist that a Shetland pony was not a horse, because it wanted the size and strength of a London dray-horse, or the fleetness of a racer; or that a spaniel is not a dog, because it wants the courage of a bull-dog, the size and strength of the mastiff, and the swiftness of the greyhound. [Loud applause.]

Among the arguments relied on for the degradation of the Negro below the level of other men are some minute and assuredly fanciful differences between the internal anatomy of the Negro and European. These differences, when they are real, appear to me of no value whatever, because, for aught we know to the contrary, a superiority for the Negro might just as reasonably be argued from them as an inferiority.

The Negro is a man, with every attribute of one. He is one of many races, of very unequal qualities. He is equal in strength and stature to the European, but very far below him in mental endowment. He is superior in strength, but inferior in intellect, to all the races of Asia who have had the same opportunities of development as himself. He is greatly superior in physical strength to the red man of America, but intellectually scarcely his equal, if we are to judge by the progress made by the Mexicans and Peruvians, labouring under disadvantages to which the Negro was not subject. But the African Negro, although greatly inferior to many races, is far from being at the bottom of the scale. He surpasses the Hottentot and the Australian, and is far above all the races of Oriental Negroes.

In the view I have taken of the characteristics of the African Negro, I am confirmed by the opinion of a great physiologist and eloquent writer, Professor Huxley, who, in his recent lectures on the Mammalia, takes occasion thus to express himself:—"Although, in the lower races of man now on earth, the human characters vary a little in some particulars in a pithecoïd direction, the extent of the variation is very slight indeed when

compared to the whole difference which separates them; and it may be safely affirmed that there is, at present, no evidence of any traditional form or intermediate link between man and the next succeeding form in the vertebrate scale."

The inferiority of the African is pleaded as a reason for holding him in slavery; but I presume it will hardly be argued that any one race of man was expressly created to be slaves to another, as certain black ants have been created to be the servants and slaves of certain red ones. It is quite beside the question to plead that the material wants of the Negro are better provided for in slavery than in freedom; for his happiness and free-will are all that deserve consideration. The relation of the Negro to Europeans as a slave was assuredly not the design of Nature, but the pure creation of accident.

A few freed Negroes in the colonies of European nations, but never in their own country, have occasionally acquired some distinction in art, science, and literature, and well-meaning persons have adduced such cases as evidence of high capacity; but the examples have been rare, and the attainments not above mediocrity. We wonder at them only because they appear in a Negro shape, much as the poet represents superior beings as wondering at the attainments of Newton. [Applause.]

Dr. JAMES HUNT, President of the Anthropological Society, began to criticize the paper read by Mr. Crawford, quoting extracts from a printed copy of it. Mr. Crawford observed that the passages referred to were not in the paper as now read, and had nothing to do with the present occasion. Dr. Hunt then protested against the doctrine put forward by Mr. Crawford, that Negro bondage appears to be almost justified by complexion, and combated the statement that many writers had represented the Negro as a pithecoïd animal—a link between the ape and humanity. He also stated that there exists abundant evidence of the dying out of the Negro race under conditions of hybridity, that Mr. Crawford's account of the internal anatomy of the Negro was wholly incorrect, and concluded by an expression of astonishment that the author of the paper should quote Mr. Huxley in favour of his views, when Mr. Huxley had so unequivocally committed himself to the theory of the ape-origin of humanity.

The Rev. M. D. CONWAY of America followed, and stated that, having lived some four-and-twenty years in the Southern States, he had had many opportunities of observing the Negro and of estimating his abilities. The peculiar odour emitted by the Negro, commented on by Mr. Crawford, was only found offensive when the Negro was offensive enough to be free. [Applause.] Negro maids slept in the same room with the young ladies of the family in the most aristocratic households, drove out with their

mistresses in their carriages, and nursed their children; while there was abundant ethnological evidence that the white race associated with the black on very intimate terms. He believed that the smell was the smell of men who had much physical labour to perform, and who were not given to frequent ablutions. In every country that he had visited he had found a class of "the unwashed" whose odour was not always agreeable. He wished further to know what authority Mr. Crawford had for stating that the African elephant had been domesticated by the Carthaginians. With regard to another piece of evidence adduced as proof of the inferiority of the Negro—viz., that he had never produced an original alphabet—he would remind Mr. Crawford that there were probably not more than twelve original types of alphabet in existence, and that none of the races of Western Europe had invented one for themselves. The statement itself, however, was incorrect; for Dr. Livingstone had found a race in Africa which had invented an alphabet, and the language of the Gaboon was not only a very musical language, but could be expressed in native written characters. Mr. Crawford had also said that the Negro knew only how to work iron among the metals. He had seen a large collection of gold ornaments made by Negroes, which showed great skill in working the precious metals. It was objected also that the custom of selling slaves out of their country was a proof of the degradation of the Negroes; but Mr. Crawford had omitted to say what he thought of the Europeans who conducted the same traffic. To say that the Red Indian was superior to the Negro also seemed a great mistake. He had nearly one hundred and fifty books written by Negroes; and he had never heard of any Red Indian who was worthy to rank with such men as Toussaint L'Ouverture. On the whole, he was inclined to agree with Professor Huxley, that the Negro approaches more to the English type in the shape of the skull, &c., than any other.

Mr. CARTER BLAKE observed that the character of the paper which had been read reminded him of some of those extraordinary animals they sometimes saw in the end of old books on natural history, whose classification no one could understand, and who were surrounded by animals of equally incomprehensible forms of life. [Loud laughter.] The whole paper was one of a character of which he could only say the evidence was on the one hand and the facts on the other. [Laughter.] The Abyssinian type of skull, which was described by the author, was one which he must have "evolved out of the depths of his own moral consciousness," as there was not one to be found in any museum. [Laughter.] He was sorry to hear such statements made again and again in that Section of the British Association with regard to the Africans. If they adopted that paper they

would be plunged back to the same absurd state in which astronomy was in before the time of Copernicus.

After some remarks from Mr. Reddie and Mr. Tait—

Mr. CRAWFURD rose to reply. There had been, he said, a good deal of quibbling and a good deal of nibbling at his little discourse, but he hoped they would pardon his friends the Anthropologists for any heat they might manifest, as they had lately met with a small disappointment; and, if they did not come forward there in the perfect spirit of fairness and good-nature, he trusted the audience would pardon them. [Applause.] He then proceeded to discuss the points raised by his objectors. He had treated the offensive smell of the natives as an indispensable attribute to the Negro, and that was all. As to the African elephant, he had to observe that, after the second Punic War, the Carthaginians were required to enter into an agreement not to tame any more elephants, and there could be no doubt that African elephants were alluded to. As to alphabets, there were fifteen or twenty distinct types of alphabets, and he appealed to the President whether that was not so?

The PRESIDENT: I agree with Mr. Conway. [Loud laughter.]

Mr. CRAWFURD proceeded to say that, in alluding to the Abyssinians, he had spoken of the head, not of the skull. [Laughter.] As to the fact of an intermixture of races not dying out, he referred to the case of the mutineers of the *Bonnty*, who intermarried with black women, and whose numbers largely increased. [Applause.]

The next of the Ethnological papers read this day was one by Mr. Edward Burnet Tylor, and of which the following is a brief abstract:—

ON THE NEGRO AND EUROPEAN DIALECTS OF SURINAM AND CURAÇOA.

Under the conditions to which Negroes have been subjected under European masters, a more or less mutilated form of the language of the dominant race has supplanted the original West African. In Virginia or Kentucky they are constantly hearing the language of their master spoken according to a pure model, but there are several instances where Negro populations have been turned loose from their former masters, and the language they speak affords an interesting study. When Florida, for instance, was transferred in 1821 from Spain to the United States, a number of free Negroes were removed with their own consent to other Spanish ground, and a small settlement from this source is found in the Isle of Pines, off the south coast of Cuba. When I visited this island with my friend Henry Christy, whose death in the midst of his labours is the heaviest loss that science has sustained during the last year, we found

a small Negro colony transplanted to a Spanish-speaking island more than thirty years, yet still speaking a degraded English, and transmitting it to their children. A more remarkable instance is to be found in Surinam, formerly belonging to the English. The Dutch took possession of it in the time of Charles II., and in 1674 it was formally exchanged for New York. But the Negro-English survived the change. In 1829 the Moravian Mission translated the New Testament into this language, of which an idea may be formed from the title, "Da Njoe Testament va wi Masra en Helpiman Jesus Christus," and in 1846 a new edition was published at Bautzen by the British and Dutch Bible Societies. As might be expected, the instances of dissimilar similarity to the original tongue are often of an amusing kind. "Gowei," for example, for "go away;" "djoesnoe" for "just now," and a host of others. To talk evil is to talk "ugly;" a servant is a "foetoabei;" a fisherman, "fisiman," &c. There are at least four separate elements in the language—a preponderating mass of broken-down English, some Dutch words, a few Spanish, and a scattered remnant of original African, among which perhaps must be classed such words as "je-je" for "spirit," and "njam" to eat.

If such a language could come under the cognizance of a comparative philologist, without the knowledge we possess as to its origin, what inference would he draw from it? Where would he place it in the classification of languages? In all probability he would set aside the Spanish and African elements as not entering into the original structure of the language, and would consider it either as a broken-down dialect of English mingled with Dutch, or a broken-down dialect of Dutch mingled with English. This interesting phenomenon gives us an opportunity of studying a real genuine Aryan dialect in which hardly a trace remains of the vast and highly characteristic system of Aryan inflexions, and which presents a comparatively near approach to the uninflected languages, of which Chinese may be taken as the type. Such a phenomenon might be taken to show that language is not necessarily any proof at all of race; but this conclusion would be hardly quite correct. It affords a good illustration of the principle that when two people speak kindred languages they may nevertheless differ widely in race; yet experience shows that where one race is so dominant as to thrust its language on another, there must be more or less mixture of blood, and to that extent the two people may be classed as descended from a common ancestry. It must be borne in mind, as Professor Max Müller has well said, that the study of languages is one thing, the study of races another. If, however, we regard language as the record of mental not bodily ancestry, as containing

the history, not of parentage, but of civilization, it will be found a wonderfully full and correct guide. In a like manner the Negro-Spanish dialect of Curaçoa corresponds to the fact of African civilization having been supplanted by Spanish, and modified at a later period by the Dutch governing class. Thus, great as is the value of comparative philology, when used carefully and soberly, in helping ethnology to unravel the complex problems as to the ancestry of various sections of mankind, its value is greater and its testimony more valid in inquiries relating to the development of various stages of civilization.

After this followed papers "On the Darien Indians," by Dr. Cullen; "On Researches in Vancouver Island," by Mr. R. Brown; and "On Language and Ethnology," by the Rev. T. W. Farrar. Of these we are unable at present to give any report.

On Saturday, September 9th, the Section was presided over by Mr. Crawford, in the absence of Sir Henry Rawlinson, and the first paper read was one by Mr. Crawford himself, on

THE HISTORY OF CANNIBALISM.

In this, the writer ascending to the origin of humanity in that remote period when man stood a naked and defenceless savage, he traced the history of the extinct elephant, rhinoceros, and cave-bear, he traced the history of his struggles and of his gradual progress in knowledge and in power. At first picking up such sustenance as the spontaneous productions of the earth afforded, and devouring the raw flesh supplied by the dead carcasses of beasts, and birds, and fish, and then, gradually increasing in numbers and in skill, he made bolder warfare on the animals around him with club, and bow, and stone-axe, and fishing-hook, aided by the invention of the canoe, and the protection of clothes and dwellings. Then animals would become scarcer, neighbouring tribes would have their wars, and in satisfying the propensity for flesh, no nice distinctions would be drawn between a slain enemy and a slaughtered beast. Hence would begin the cannibal era, through which Mr. Crawford conceived that all races had passed.

Gradually agriculture, commerce, and the other elements of civilization would remove the necessity for thus preying upon one another, and give play to the higher feeling of human nature, and cannibalism would gradually die out, or only linger as a religious tradition. In this way Mr. Crawford sees, as regards this subject, four different epochs in the history of humanity: the pre-cannibal state, the cannibal state, the state in which cannibalism existed as a religious ceremony or in which human sacrifices were still prevalent, and finally, the state in which a higher

intelligence and a more advanced social condition had entirely proscribed the practice.

Mr. Crawford conceived that all races had passed through the two earlier of these stages, but in unequal degrees, and in longer or shorter times, according to their inherent qualities and the advantages or disadvantages of their external conditions in climate, locality, and abundance or scarcity of animal food; and references were made to the bearing of the inquiry on various nations and races, ancient and modern. As regards the more civilized portions of the world, Mr. Crawford thus concluded:—

The conditions of physical geography, including fertility of soil and the possession of animals amenable to domestication, and of plants to cultivation, were highly favourable in Italy, Greece, Egypt, Assyria, Persia, India, and China, and in these, civilization is of high antiquity, the progress made by each varying with the quality of the race. In Northern and Western Europe, the quality of the race of man was of the highest order, but the conditions under which he was placed were unpropitious, and his advance proportionally slow, and would have been still slower had he not been aided by the instruction of the oldest civilizations of Europe. It was in this quarter of Europe that cannibalism probably, and human sacrifices certainly, lingered the longest.

Of the next paper by Dr. R. S. Charnock the following are extracts: —

ON EUROPEAN CANNIBALISM.

In the Homeric poems the Cyclopes are a race of shepherds in the south-west of Sicily who devoured human beings; and, according to Sextus Empiricus, the first laws that were made were for the prevention of the practice, which is represented by Greek writers as universal before the days of Orpheus. It is also frequently referred to by the classic writers, although generally in a traditional form, of little value as direct evidence of its existence. The evidence of St. Jerome, however, is clear, with regard to its prevalence among the Attacotti—or, perhaps, more correctly Attacoli—who inhabited the country from Loch Fyne on the west to the east of the Læven and Loch Lomond. Of the Galatæ, also, Diodorus Siculus reports that “those towards the north and bordering on Scythia are so fierce and cruel that they eat men like the Britons that inhabit Iris,” *i.e.*, Ireland. The Essedones, too, a partly European, partly Asiatic race, are mentioned by Pliny as a nation who eat the flesh of their friends after death, an account probably derived from Herodotus. The Achæans, Heniochi, and others are spoken of as cannibals by Aristotle,

as are the inhabitants of Chios and Tenedos by Porphyry. During the middle ages we find the accusation of cannibalism frequently bandied between enemies. Thus the Lombards who invaded Italy at the end of the sixth century, the Slavonic tribes, and both Christians and Saracens during the Crusades, were all denounced by their foes as anthropophagi. Even our Richard I. is made to say, in an old poem—

King Richard shall warrant
There is no flesh so nourissant
As the head of a Sarazyne.

In modern times no European nation has been addicted to cannibalism, although many isolated instances of it occur. The brigand Tarik, from whom Gibraltar derives its name, is said to have served out his murdered prisoners as rations to his troops; and Ford speaks of an *entrée* in modern Spanish bills of fare called "*Un guisado à la Quesada*," the patriotic *nacionales* having killed and eaten part of that rough and tough Royalist in 1836. The gipsies in Germany and the brigands of Italy and France supply instances of the practice; but perhaps one of the most remarkable is that of Sawney Bean, in the days of Elizabeth, who, with his mistress and family, lived in a cavern on the Galloway coast for twenty-five years, and was in the habit of waylaying, slaughtering, and eating any travellers who might pass that way, upwards of 1000 men, women, and children being reckoned as the number of his victims. In some instances the desire for human flesh seems occasioned by disease, instances of which have occurred in Germany and Scotland, while cases of cannibalism from sheer famine are common in the history of every European country. Voltaire repeats a story of a woman who kept a tallow-chandler's shop in Dublin, and sold excellent candles made of the fat of Englishmen. A customer complaining that the candles were not so good, "Sir," said she, "it is because we are short of Englishmen." According to the old laws of Spain, "a father besieged in his lord's castle, and pressed by hunger, might eat his own son, without incurring reproach, sooner than surrender without his lord's mandate;" and it seems that, during the siege of Calahorra by Afranius this ancient law was carried out to the letter by the defenders of the city.

An animated discussion followed the reading of these papers.

MR. LUKE BURKE thought there could be no reasonable doubt that cannibalism had been practised in various times and by various nations. There was a *prima facie* probability of such having been the case. As to the explanation which Mr. Crawford had given of the custom, they could know nothing of such matters, except by inference, and the inferences of

which the case admitted were not of a nature to lead them to anything like real certainty ; but he thought Mr. Crawford had offered a very fair and plausible theory, assuming the fundamental principle that early man was really in the condition described. If, on the other hand, they took an opposite view, the argument fell to the ground at once. [Applause.] If they took the view that man was originally created in a high condition, from which he has since degenerated ; then, of course, such a theory as that proposed would necessarily fall to the ground. [Applause.] To the mode in which the subject was dealt with in the second paper, he conceived there were serious objections. In the first place, there was a collection of quotations and anecdotes from classical writers which any student who was in the habit of investigating antiquity with anything like criticism must know were too vague and unsupported to prove anything at all. In ancient, as well as in modern days, there were clouds of old stories floating on the public mind, and if such things could be taken as evidence, and used in the manner in question, any one might prove by them anything he pleased. [Loud applause.] As to modern European cannibalism, he thought it exceedingly probable, in fact, it was certain that there had been some few individual cases of it, but these, he thought, showed a depraved appetite, the result of some malformation, just as there have been individuals who were fond of devouring candles. [Laughter.] This was, however, a very different thing from the healthy cannibalism of the Feejee Islands and New Zealand. [Laughter.] Again, he must say, that a collection of anecdotes which might have fifty different kinds of interpretation put upon them, could not be accepted as proving anything. Thus, the paper alluded to a law that a man might eat his own son rather than give up a citadel, but that was a figurative expression, and could only mean that the castle must be defended at all risks. [Applause.]

Professor RAWLINSON said there were many motives which led to cannibalism, and he thought hardly sufficient importance was given to them. Amongst these motives he alluded to those excited by angry passions, by revenge, or from motives of religion. He protested against the assumption that human beings were originally in that poor and destitute condition which had been described, and that they all rose from a state of barbarism. [Hear, hear.] He held the very opposite opinion : viz., that they were created in a state of considerable civilization, and that most of the races had declined, and that while many races had declined into absolute barbarism, some races had never done so. The Egyptians, Babylonians, and Jews had never so declined.

Mr. THOMAS TATE did not believe there was anything in man to predispose him to cannibalism. He mentioned the case of the son of a New

Zealand chief, who lived with him, and who said he had eaten human flesh, but it was after a battle only; but the same young man was addicted, when with the speaker, to eating candles. [Loud laughter.]

Mr. CARTER BLAKE contended that the law which allowed of the eating of a son, rather than the giving up of a citadel, was a genuine one, and really meant what the words implied.

Dr. W. CAMPS supported the views of the gentleman who opened the discussion.

Dr. J. HUNT observed that the idea of cannibalism having begun in the stone age, was an effort of the imagination only. [Laughter.] There was no evidence to support such a remark. He objected to the theory of all races having at one time lived in caves and trees. They were only now beginning to study the primitive history of man.

Mr. OLIVER BYRNE, the mathematician, who possesses an infectious humour which breaks out even when he is most serious, excited considerable merriment; he said he could prove beyond dispute that 6000 years ago there were not six people in the world. The demonstration was published in a two-guinea book of his. [Loud laughter.] The book was out of print. [Laughter.] It was not for sale. [Laughter.] He was not a bookseller—[laughter]—but the book was in the British Museum. [Much laughter.] To the Chairman: I don't think they ought to laugh. [Roars of laughter.] He had demonstrated his position by means of calculations based on the average duration of life, making due allowance for war, plague, famine, &c., &c., and he could see nothing to laugh at in the notion. Until his arguments were answered, it was useless to attempt to thrust back the origin of mankind beyond 6,000 years.

Mr. E. VIVIAN believed in the historical evidence of the origin of man; and also believed implicitly in the geological evidence; and that there had been in the records of the past traces of men of so extremely low a type, that they could have had nothing to do with Adam, and could not have degenerated from him. With Adam there came in a race—a higher race of human beings; and the history of the world commenced with the well-authenticated sacred history, which so thoroughly fell in with all the facts that had been brought before them. [Applause.]

After some remarks from Mr. Kenneth Mackenzie, another paper by Mr. Crawford, "On the Papuan or Oriental Negroes," was read and discussed, and followed by a paper by Mr. Dunn, one of the Vice-Presidents of the Ethnological Society, "On the influence of Civilization upon the Cerebral development of the different races of Men." At the conclusion of the paper, it was agreed to continue the discussion on it, though the hour of adjournment had arrived, and an animated controversy was

kept up till nearly a quarter to five o'clock, p.m. Our remarks on these and the remaining papers of the section, must stand over for our next number, as we have now exhausted all our available space.

On Monday the Ethnological interest of the section was mainly concentrated on Mr. Wright's paper, "On the true assignation of the Bronze weapons &c., supposed to indicate a Bronze Age in Western and Northern Europe." This paper produced an animated discussion, in which Sir John Lubbock and Mr. John Evans took the principal part. Then followed papers—"On the comparative Anthropology of England and Wales," by Mr. D. Macintosh; "On the marked Flints of Pressigny le Grand," by Mr John Evans; "On the Flints of Pressigny le Grand," by Professor Steenstrup and Sir John Lubbock; and on the "Origin of the Gipsies," by Dr. Charnock.

On Tuesday Mr. Vámbéry contributed an amusing account of "City life in Bokhara," and Mr. Carter Blake read a paper "On certain Simious Skulls, with especial reference to a skull from Louth in Ireland."

This closed the Ethnological proceedings. Throughout the week Section E. maintained, with the public, its usual attractiveness, and on this day the large room of the Reference Library of the Midland Institute, was even inconveniently crowded. On this occasion, the main attraction centred in the Geographical papers, and indeed throughout the whole session, the Geographical element, if not paramount in attractiveness, at all events contributed its full share to the general interest. In Section D. also, there were several papers read having a direct and important bearing on Ethnological pursuits, but we must trust to another opportunity for speaking of them.

ANTHROPOLOGY AND THE BRITISH ASSOCIATION.

THE first Meeting of the General Committee of the Association, on Wednesday September 6th, was this year looked forward to with an unusual degree of interest, and by many with much anxiety, for at it was to be decided the long agitated question of a distinct section for the study of Anthropology. The leading official members of the Anthropological Society had exerted themselves with untiring energy to secure votes, or to charm down opposition. As mentioned in our last, suitable rooms had been secured in Queen's College, Birmingham, for the meetings of the new section should it be granted, or if not, for those of the Anthropological

Congress, which was to be substituted for it, if circumstances seemed favourable.

During the whole of Tuesday, and up to the time of meeting on Wednesday, an active canvass was carried on in the Reception-room and elsewhere, as members continued to arrive. Conciliation was the order of the day; and, to augur from the general look of satisfaction which prevailed, the prospects of Anthropology were decidedly in the ascendant. A list of papers to be read in the new Section, and amounting to no less than *forty-three*, had been distributed to the authorities and others concerned, together with the last Anniversary Address of Dr. Hunt (now dedicated to the British Association), and containing the defence of Anthropology and the strictures on Ethnology, to which we have alluded in previous numbers of this work. And these were accompanied by a series of extracts from periodicals or distinguished writers, calculated to further the end in view. Nor were we a little astonished to find that, by a dexterous manipulation, even the *Ethnological Journal* was made to figure as one of the most energetic supporters of the measure—bringing up the rear of these extracts with all the emphasis of a climax!

At last the hour of meeting arrived, the chair was taken at 1 p.m. by Sir Charles Lyell, the President of the previous year, and the members of the Committee mustered in large numbers.

The detailed business having been at last got through, Dr. Hunt arose, and in a conciliatory and judicious address proposed the resolution of which notice had been given the previous year, that a separate section should be formed for the study of the Science of Man. This motion was seconded in a few earnest words by Sir Edward Belcher, who was evidently impressed with the idea that it was an act of simple justice to the students of Anthropology.

It now became the turn of the Members of the Council to give their views in the matter; and these were emphatically against the motion, on grounds of simple convenience. Sir Charles Lyell, Sir Roderick Murchison, Professor Phillips the President elect, and Mr. Grove successively entered into explanations of the reasons which had always compelled the Council to resist all motions for an increase in the number of the sections. These reasons were the difficulty of obtaining suitable accommodations, even for the existing sections, in any but the very large towns, and the necessity of thus excluding from the range of the meetings many towns where, otherwise, it would have been most desirable to hold them.

These points, and various others which the controversy had called forth, were discussed with the utmost kindness and temper by the gentlemen named, and with every possible consideration for the feelings of those whom

they were obliged to disappoint. The matter, indeed, was placed in so clear and forcible a light that it was felt to be hopeless to persevere in the motion.

Some modified resolutions and amendments were then proposed—one to the effect that the Sub-Section of Physiology, in which, it was stated, there was a dearth of papers, should be henceforth devoted to Human Physiology and Anthropology; and then came an amendment adding the word Ethnology to these, and, finally, another, substituting the phrase "Science of Man" in place of the rival terms Anthropology and Ethnology. All these motions and amendments, however, were decisively negatived on being put to the vote, notwithstanding that the friends of the Anthropological Society mustered strong on the occasion, and energetically advocated their cause. Indeed they may be said to have had the whole of the speaking to themselves as far as the claims of Ethnology were concerned, Mr. Crawford being the only person who expressly spoke on this side of the question, and that but very briefly.

Thus ended this long-expected meeting; and the disappointment to those who had hoped for a different result was proportionate to the eagerness with which the object had been pursued. On all sides due allowance was made for these feelings, and all reasonable facilities were offered by the Committees of Section E and Section D for the reading of as many of the papers brought by the Anthropological Society as time would permit. If any opposition or irritation was at all evoked on the part of Ethnologists, it was wholly due to the injudicious efforts still made to renew discussion, or to repeat, without any new evidence, the oft-refuted definitions and limitations given of the word Ethnology.

In the Committee of Section E, various attempts were made to obtain a vote of the Committee, recommending some adjustment which would give to Anthropology a distinct recognition in the Association, whether as a sub-section or part of a sub-section; such, for instance, as adding the word Anthropology to the existing designation of Section E, thus making it "SECTION E, *Geography, Ethnology and Anthropology*." But as such arrangements could not possibly give any additional facilities for the study of the science of man, while they involved a manifest error, they were all opposed. On Saturday, the 9th, Mr. Crawford, who presided in the section, refused to entertain them at all, or allow them to be put from the chair, on the ground that the matter had already been settled in the General Committee, and that he had no right to re-open the discussion. On Monday, however, when Sir Henry Rawlinson presided, the motions were renewed and negatived, and again, on Tuesday, Mr. Kenneth Mackenzie, in a very conciliatory and benevolent speech, full of good advice,

but ending, as usual, by quietly assuming the points at issue, proposed that the Committee of Recommendations should be requested to suggest such a re-adjustment of existing arrangements as would give to the Science of Man a distinct section or sub-section, under the name of Anthropology.

To this motion an amendment was offered by Mr. Burke, seconded by Mr. Crawford, substituting for the word Anthropology, the term "Science of Man;" and this amendment was carried by a vote of 11 to 9, and the original motion, as thus amended, being then put, was accepted unanimously.

Finally, at the last meeting of the General Committee, on Wednesday, the 13th, the matter was definitively disposed of, for the present at all events, as will be seen from the following statement, which we extract from the *Birmingham Daily Gazette* of September 14th. The meeting was numerously attended, and the President, Professor Phillips, was in the chair.

The PRESIDENT, having called on Mr. Galton, the General Secretary, that gentleman read the following report, received from the Committee of Recommendations:—

"The Committee of Recommendations have received the two following recommendations from Section D. That the title of Section D be for the future 'Section D, Biological Science.'

"That Section D should comprehend the whole field of Biological Science; that the Council should cease to make special arrangements, and to nominate a President for a Physiological Sub-Section D. That arrangements should continue to be made by the Executive from year to year for a room adequate to receive any one sub-section which the Committee of Section D may be pleased from time to time to form.

"That in nominating Vice-Presidents to Section D regard should be had to the possibility of a sub-section being formed for any one of the great branches of Biological Science over which a Vice-President might be called upon to preside.

"The Committee have carefully considered these propositions, and beg to report, as their unanimous decision, the following recommendations, to take effect at the next Meeting:—

"That the title of Section D be changed to Biology, and that the Council be charged with making the requisite arrangements.'

"The Committee have received the following recommendations from Section E:—

"That it is highly desirable to establish a section or sub-section for the discussion of the Science of Man; and it is, moreover, urged upon the consideration of the Committee of Recommendations to take such action in the

matter as will effectually prevent the limited time of this section from being wasted in future.

"The Committee have carefully considered this proposition, and recommend, as their unanimous decision, that no separate section or sub-section be established for the Science of Man.

"The Committee unanimously recommend that for the word 'sub-section' in the third paragraph of the business of sections the word 'department' be substituted."

The PRESIDENT said it was his duty to propose, on behalf of the Committee of Recommendations, that the report, which, though drawn up in so concise a spirit, had not been prepared without the greatest attention, should be accepted. Referring to the various recommendations and decisions of the reports, he said the difficult and important question referring to the Science of Man would not be neglected. He had learned that the opinion had gained ground in the minds of some, and he could not think they were members of the Association, that sub-sections were not quite so dignified as the sections. In the judgment of the Committee, they thought that error should be corrected, and they had decided that an alteration should be made, and the divisions changed into "departments." He would therefore suggest to them that the best form would be, instead of approving of the report, simply to receive it.

Sir J. BOWRING: Would it not be better that the report should be received and adopted?

The PRESIDENT: I shall be very glad to receive the benefit of the long parliamentary experience of that gentleman—[laughter].

The motion was then put and carried unanimously.

Thus has ended, for the present, this arduous struggle, and the leisure of another year is afforded for a more careful and critical consideration of the whole matter than it has received in the two former years; and we venture to assert that, had Ethnologists had the advantage of a periodical expressly devoted to their science, and in which they could freely exchange their thoughts and discuss their differences, either there would have been no division at all in the body, or the terms of the division would have been too clearly and fully understood from the beginning to have allowed of such confusions of thought and fact as have actually taken place. The errors which have now received a check might have been checked still more easily at their first promulgation, if, indeed, in such a case, they would ever have been promulgated at all, and many would thus have been saved the trouble of having now to unlearn much that has been so industriously taught them during the past two years and a half.

ARCHÆOLOGY AND THE BRITISH ASSOCIATION.

ARCHÆOLOGY is not recognised in the British Association : it is not there counted among the circle of the sciences. This exclusion appears startling, and no doubt has often taken many by surprise. It looks like some antiquated piece of legislation, some relic of the Dark Ages, which stands out a blot in the light of modern thought, and imperiously demands removal. Such was the view evidently entertained on the subject by many, possibly by most of those who watched the course of things at the late meeting of this body ; and it was curious to observe the confusion of ideas, the mixture of truth and error, of fact and surmise, which was brought to bear upon the subject. It almost seemed as if the old tradition respecting it had faded in the memories of many who must be supposed to have once clearly comprehended it, and, as if it would ere long become necessary to re-discover the lost truth by some laboured process of philosophical induction.

Fortunately, however, the matter happens to be very simple, and there are, besides, many still amongst us who must well remember the "whys" and the "wherefores" of the whole question from first to last.

Were the British Association now commencing its existence, instead of having just celebrated its 35th birthday, it is exceedingly probable that Archæology would directly or indirectly receive from it an official recognition, though even now the privilege would not be conceded without opposition and misgivings. But in *Anno Domini* 1830 the matter did not admit of a moment's hesitation. At that date, Archæology had not the slightest claim to recognition in a body which neither proposed to embrace the entire circle of human knowledge nor even the range of partial and prospective sciences, but was intended to be limited to such as were strictly and actually sciences.

By science was then meant, as is still meant, an organized body of *demonstrable* facts and laws, giving us a knowledge of Nature in some of her many aspects. No doctrine, based upon evidences incapable of strict verification, could therefore be accepted as scientific, nor could any amount of facts, however genuine, render a doctrine scientific while those facts were used and interpreted in an unscientific manner. The sole, or rather the sole immediate object of science is knowledge, and that only is really knowledge which is true, and that only can be legitimately affirmed to be true which can be proved true.

Now, a truth may be either direct or inferential. A direct truth is one perceived immediately by the senses, and in a normal and healthy organism such perceptions are infallible, because they are the direct and necessary

result of the action of the organism, as that action is the direct and necessary result of an appropriate external stimulus.

An indirect truth can only be reached by inference from an already ascertained truth or truths, or by a sequence of such inferences, and an inference of the kind in question means a *demonstrable* consequence, a deduction which is *necessarily* true because the denial of it involves a clear impossibility, a self-contradiction, an absurdity. It simply means, in fact, that a result cannot be *yes* and *no* at one and the same time, and in one and the same sense. Where every step in such a process is taken legitimately and with clear and steady thought, the ultimate result, however remote or comprehensive, is absolutely true, and under such circumstances the human mind is always and necessarily infallible; but as it rarely happens that all these requisities are present in cases requiring extensive knowledge or long sequences of thought, it comes to pass that, practically, human reasoning is very fallible. Still that fallibility implies no intrinsic imperfection; it simply means that the power possessed, though genuine and perfect in its kind, is inadequate in strength or compass to the immensity of the requirement. But we are not, therefore, abandoned by Nature, or condemned to grope hopelessly through abysses of illusions; we are simply placed under the necessity of attaining by labour and patience and skill that which cannot be reached directly and without trouble. The eye is not imperfect because it cannot discriminate minute objects at the distance of a mile, it is simply limited in power, and this limitation places us under the necessity of walking that additional distance, or of inventing a telescope.

Now this is precisely what science also requires of us. Recognising the infallibility of the human mind when working legitimately, and within the strict limits of its powers, it directs its attention to the best means of keeping it within these limits, and compensating for this restriction by proportionate labour and patience. It therefore rules that nothing is to be taken for granted; but that all reasoning must be based on direct observation. It collects facts, it compares, scrutinizes, discriminates, arranges. It surrounds itself with a multitude of truths, clear, unquestionable, patent to every observer, and ready at all times to be re-examined and re-verified. It thus builds on an unshakable basis—on an eternal rock.

Next comes the difficult and delicate task of inference, and here is tested the strength or weakness of the individual inquirer; but when men have trained minds, when they recognise the laws which should guide them as scientific workers, and endeavour, as best they can, to conform to them, they cannot fail, even in the midst of many errors, to reach, by degrees, many im-

portant truths, while their mutual interchanges of thought and conflicts of opinion must constantly tend to advance and purify their aggregate knowledge. And thus it comes to pass, in time, that this feeble and so-called erring intellect builds up great sciences, lays bare mysteries deemed inscrutable, and acquires a power over Nature such as no sober thought could have ever dared to anticipate even in its most sanguine moods. Thus it has come to pass that the eye which once could not reach a mile now pierces the abysses of heaven, that the child of ignorance is born to a heritage of wisdom, and that the descendant of the savage walks the earth a ruling Providence.

No wonder, then, that scientific men should place a high estimate on their pursuits, their methods, their privileges. No wonder they should draw broad distinctions between their modes of working and all other modes of working, and jealously scrutinize the claims of those who aspire to a union with their body.

It was in this spirit that strict limits were set to the sphere of the British Association, while an additional, but subordinate reason was furnished by the practical difficulty of finding suitable accommodation for a large number of sections.

Now, what was the condition of Archæology in 1830? The very reverse of all that we have just described. It had facts, but it did not *begin* with them. It began with assumptions—with uncertainties. There was something before the facts, to which the facts had to accommodate themselves, and by which they had to be explained, and that something was neither certain nor demonstrable, nor within the range of the senses, nor capable of any form of genuine verification. That something was History. Archæology in those days was the handmaid—the slave of history, instead of being her mistress. And what was the result of this kind of working—what the gains, the triumphs, the rewards of labour, and patience, and skill, and learning, and genius? The result was chaos; conflicting systems, buildings-up, pullings-down, re-constructions, patchings, compromises, indefinite credulity, conjectural reasoning in every form—not a solitary substantial grain which labour or genius could chronicle, except in the few cases in which Archæology, too much pressed upon, rose in rebellion against her mistress and put her down.

How could the British Association recognise as legitimate such wild proceedings as these, or accept among the number of its branches a pseudo-science which had not yet taken the very first step in the career of progress?

But was this condition of Archæology a matter of necessity? Not in the slightest degree. There was no impediment whatever in the nature of

the case. All the difficulty was within—in the student himself. Before the mind was capable of forming any correct judgment on such matters it was filled with history—filled to overflowing: all that could possibly be driven into it, was driven into it; and how could that be doubted which grave, and venerable, and learned men had read out solemnly and authoritatively, from venerable and ponderous tomes, as other grave, and venerable, and learned men had done before, generation beyond generation, back and back, up to the beginning? There lay all the difficulty, and there it still lies; and, until the archæologist can perform the arduous feat of shutting up these venerable tomes, and keeping them shut up, he is not a scientific man, nor entitled to claim recognition by the British Association. When he has laid the foundations and traced the outlines of a genuine science, then may he re-open these volumes with advantage. Then may they be found to throw a flood of genuine light, though, possibly, in a very different sense from any that would now be expected.

We do not say that history is not true; for anything that matters to the present argument, every word of it may be true; but, if this truth cannot be proved, as science requires things to be proved, it cannot be made the basis of any scientific deduction. But if the tree is known by its fruits, history looks very much like the bushel of chaff in which a few scattered grains of wheat are somewhere to be found. Science is a thing of yesterday, yet it has worked wonders; historical antiquarianism, though a venerable pursuit, has only become more and more bewildering the more earnestly it has been followed out.

But there is a mode of using history itself which is unequivocally legitimate, and in the strictest sense scientific. History, traditions, myths, symbols, superstitions—all these, even in their wildest extravagance, are genuine, unquestionable facts in so far as their simple existence is concerned; as much facts as granite blocks, mammoth bones, or carboniferous lepidodendra, and, like these too, they are relics of the great past—mental fossils, wrecks and fragments of human thought and action. What is to prevent such things from being collected, compared, scrutinized, discriminated, and classed? and what is then to prevent their being made the basis of genuine scientific inference? There is neither difficulty nor mystery in the case. It simply needs the patience and self-control required in all scientific workings. Let these be supplied, and there lie before us the materials of a great science, of a new section in geology, a new field of labour, and one that cannot fail of being eminently productive, for all labour becomes productive in the hands of science. In this sense monuments, relics, histories, literatures, languages, creeds, myths, legends, symbols, and traditional usages of every kind come within the

sphere of a universal archæology. Let such a study be organized amongst us, and what scientific man will hesitate to hold out to us the hand of fellowship?

But, before this can be done, we must check our impatience, keep our learning in abeyance, and be satisfied to untie instead of cutting the Gordian knot. While we are content that Jack shall be responsible for Dick, and Dick for Bill, and Bill back again for Jack, we are arguing in a vicious circle; and it matters not in the least how large we make the circle if its intrinsic quality remains the same.

But surely, it will be said, we cannot thus throw all historic antiquity overboard; if there be doubts and difficulties, such occur everywhere, and there is a vast deal respecting which all are agreed. What man in his senses, for instance, would think of questioning the historic reality of Julius Cæsar, or Herodotus, or Thucydides, or their many illustrious contemporaries? Of course not. Heaven forefend that we should be guilty of any such impiety. But then, for all that, he will be a clever man who *proves* any of these gentlemen; and it is just that little word *proof* which is here needed; for assuredly no man in his *scientific* senses will ever think of framing an argument with Julius Cæsar at the bottom of it; as soon would he think of placing there Jupiter Omnipotens and the last *Conversazione* at Olympus.

Once upon a time, whenever the antiquarian set out upon his travels into the remote past, Noah's Ark used to stop the way. The Ark is there still; but some how or other we have managed to get past it, and are now making tolerable progress on the other side. But within the circle which it bounds we still consent to be prisoners. If we work upon classic annals, then Herodotus becomes our limit, and beyond his ken there is nothing to be seen or looked for. If, turning our steps homeward, we walk into the hallowed precincts of Abury or Stonehenge, then Cæsar and his hosts rise up like an exhalation before us, while, flashing from every banner, the mystic A. U. C. fix limits to our progress with day and date. Nay, we are not free even within narrower circles still; for if, coming down, for instance, to mediæval times, we flatter ourselves with the idea that events are more elastic than might at first be imagined, the pleasing dream is presently broken as tiny voices ring out from the nursery—

“ In the year *ten hundred and sixty-six*
From his Norman home the Conqueror came;
And England's trampled rights affix
The tyrant's brand upon William's name.”

Day and date for it, in every direction, turn as we may.

What, then, is to be done in an emergency like this? Are we to attempt to breast the entire stream of tradition, and suddenly unlearn all that has previously been taught? Certainly not; this would be a measure as illogical as it is needless. We must do now as we have often done before. Instead of running foul of Noah's Ark, we have doubled it, and now it stands, as before, a venerable monument of antiquity, but no longer in the way. So we must do with Julius and the Conqueror, and all other like impediments: we must double them. But through the charmed circle of *chronology* we must break uncompromisingly; that is the first and the only step which can lead us into science. Here, it is not a question of manœuvre or circumnavigation, but one of direct rupture. The band of chronology must be absolutely broken, be it elastic or rigid. The history which science creates knows nothing of dates, and can know nothing. It has strata and thicknesses, epochs and durations, but no minute measurements of days or years, or centuries even.

Let, then, the antiquarian, if he pleases, have two faiths, two reasons, two truths even, which some day or other have to coalesce into one, but let him now keep them distinct, and above all let him remember that scientific truth has no elasticity and admits of no manipulation. Every link is adamant, for Nature herself is the worker.

But, in any case, we ought not to forget the point of view from which this question must be looked at by all who are clearly conscious of its scientific bearings. There is nothing whatever to prevent Archæology from being as thoroughly a genuine science as geology or astronomy; but until it does become so, and, at all events, until the conditions requisite for its becoming so are recognised and accepted by its students, they can have no right to claim for it a scientific status.

It is a thousand pities, indeed, to see so splendid a field unworked, while so much learning and talent and time are thrown away, or but half remuneratively employed, in consequence of the false direction which has been given to them. When we see what some half a dozen years have brought to light as regards the remoter history of man, and in a case where facts are so relatively vague, and so relatively few and scattered, what might not be accomplished by a great and learned body like the antiquaries of Europe, were they to throw their energies into the sphere of genuinely scientific labour, and set to work upon the magnificent materials which everywhere spread out before them!

To the Editor of the ETHNOLOGICAL JOURNAL.

SIR,—I wish to crave some few sticks of composition in your Journal, in order to say something upon an assertion made in your issue of September. I refer to page 142, where you state that “ Anthropology was never looked upon in this country as a distinct science from Ethnology until the Anthropological Society of London was formed, nor, we believe, in France, till the Anthropological Society of Paris was formed.” May I ask to which Anthropological Society of Paris you refer? In 1845-6 an attempt was made, and statutes printed, now in my possession, to establish such a society. The then French Government refused their sanction to those statutes upon political grounds—the present free and enlightened Government promoted, rather than rejected, the present Anthropological Society of France. So much acerbity has been evinced about this matter, ink needlessly wasted, and dissension aroused, that it would surely be wise to rather consider the science of man, than somewhat irrelevant distinctions of terms. In the scientific language sanctioned by Europe, Anthropology is the equivalent adopted since 1501. Ethnology is recent, and open to much criticism. As reasonable men let us be exact, or our whole machinery, in consequence of petty differences, will get out of gear, and what position would any one of us be authorized to occupy in such case? To stultify inquiries into man and his nature by personalities, is sheer folly, and I would strongly urge that while a reformation of the terminology be conceded, on the part of Ethnologists, the interests of the common quest be held in view by both parties to the inquiries relating to the subject.

I am, Sir,

Yours very truly,

KENNETH R. H. MACKENZIE.

Chiswick, 18th September, 1865.

 THE ETHNOLOGICAL JOURNAL.

OUR correspondent Mr. Mackenzie has recalled attention to the differences existing among the students of the Science of Man, respecting the use of the word Ethnology, and thus forced us again to recur to a topic on which we have sufficiently expressed our opinions already, and would now prefer leaving in the hands of others.

In answer to his inquiry, we have to observe that we, of course, refer to the existing Anthropological Society of Paris, and not to the one

which never came into existence, and which therefore has had no influence on the course of thought. It is not unnatural that a jealous government, in a troublesome time, should have looked on this new society as a superfluity, since its scientific objects were essentially the same as those of the then existing Ethnological Society, and they may have thus been led to regard it as a possible mask for political aims. However, be this as it may, we see no reason for supposing that the society was projected because it was felt that Ethnology was an unsuitable name for the science of man, and therefore our statement needs no modification.

We entirely agree with our correspondent in regretting that any discords should have been excited in this matter, but we must remind him that none *were* excited previous to the year 1863, and that all the printer's ink expended on the subject in this country since then, up to June or July last, has been expended by Anthropologists, and mainly, if not exclusively, in the authorized publications of the Anthropological Society of London. During this interval of two years and a half, Ethnologists have looked on and held their peace; no ink has been wasted, and as far as we remember no public comments made, except the few remarks forced from two or three leading members of the body, in their official and legislative capacity at the meetings of the British Association in 1863 and 1864, and yet during all this time they were exposed to a merciless cannonade from Presidential Addresses, Editorial Prefaces, and Quarterly Reviews! Really this is too absurd.

Our correspondent benevolently lectures us upon the impropriety of finessing about terms, as if the whole affair were not the exclusive work of his own people. We have neither finessed nor interfered; we have no quarrel with the word "Anthropology," nor do we seek to limit its import: Ethnologists simply claim the right of choosing their own nomenclature, and defining it in their own way; and as their choice and their definitions long antedate those of their Anthropological brethren, our correspondent is but enacting the fable of "the wolf and the lamb" when he charges them with having troubled the waters. The real grievance appears to be that the lamb has proved a tougher customer than was at all expected, and not only objects to being eaten, but actually turns upon the wolf and repels his attack.

We join our correspondent in his wish for the return of peace, but then it is not to us, but to his own people, that he should address himself; we are as anxious as himself to let the matter drop. It is becoming tiresome, and we feel ashamed at having to waste time and words on so foolish and uncalled-for a controversy; but while others insist on keeping it open we have no alternative.

"Let there be peace," said the Federal hosts to the beleaguered Confederates. "It is precisely what we fight for," was the reply. "Let us alone, and there is peace." This is our answer to *our* invaders. The moment they cease, we cease; but we object to being annihilated for the simple convenience of any scientific body, however large.

WE would commend to the attention of our readers the article on "Man, Savage and Civilized," in a preceding page; it offers a bold and honourable challenge, made in the fairest spirit of scientific controversy, and we can hardly doubt that it will be accepted, and we trust, too, in the same fair spirit. There is much more in the letter than may meet a superficial glance; and though, for ourselves, we differ from its main conclusion, we cordially recognize the fact that that conclusion is based on a great central truth, which, rightly interpreted, would speedily settle all our differences.

However, we only speak now to acknowledge the importance of the issues raised, for though we are all familiar with the theory of degeneration in its traditional and dogmatic aspect, it is only beginning to claim attention as a genuinely scientific thesis, and on this ground it is well entitled to a respectful and earnest consideration, for on the one hand it probes the most important phenomena of biological science, and on the other the existing status of our historical knowledge, while it somewhat daringly confronts the accumulation of facts which recent research has brought to light in reference to the early condition of the human family.

THE position of an Editor is not exactly the most enviable of human conditions, even though it may freely be allowed to have some pleasant aspects, and certainly some amusing ones; but of all Editors the *new* Editor is the one who is apt to be most hardly dealt with. The veteran is recognized; we know what he is about, we know what to expect from him, and see that it is useless to plague him. Even at the worst, we take him as a necessary evil, and make our arrangements accordingly. But the new hand is a different matter. He is expected to be plastic, docile, reasonable; and strenuous are the efforts made to lead him into the right path, and severe the penalties imposed if those efforts prove abortive, or even threaten to prove so.

Duly to respond to those efforts would be to enact, every day of his life, the fable of the "Old Man and his Ass," and so the poor Editor has sooner or later to turn restive, take his own course, and accept its alternatives.

Though not altogether new to our trade, our work is new, and therefore we are duly passing through the inevitable ordeal, and tasting—not,

certainly, "the sweets of office," but, we presume, those wholesome bitters which are to stimulate appetite, and give a zest to enjoyment—when it comes.

We have placed before our readers a programme of our plan and intentions; but that, with some of them, evidently counts for nothing: there are people who always insist on seeing recondite meanings everywhere, and who practically carry out the theory that language was invented for the purpose of enabling man to conceal his thoughts. These can read the signs of the times from very faint indications indeed, and they have already made some notable discoveries. A critic, in a most respectable northern journal, *The Scotsman*, has discovered, amongst other things, first, that this work is the organ of the Ethnological Society, and owes its origin to the Anthropological secession; and secondly, that one of the main purposes for which it was established is to oppose the Darwinian theory!

The first inference is not altogether unnatural considering the general tendency to reason on the principle of *post hoc, ergo propter hoc*; but the ground for the latter is slight indeed, being nothing more than the purely accidental coincidence that two of our writers have simultaneously expressed views opposed to Darwinism. Upon this basis comes the strange inference that a society, which is proud to number among its members many of the most eminent of the Darwinians, has set on foot a journal for the purpose of writing down Darwinism! The real facts of the case are so amusingly in contrast with the inference, that we are sorry we cannot place them before our critic, and enable him to share in our mirth.

But this is nothing to the disgrace we have incurred by the attack of our correspondent *Ethnicus* on Phrenology, and by the further delinquency of not having allowed him to be answered in a style quite unsuitable, in our opinion, to a scientific journal.

Our friends are precipitate. They do not see into the mile-stone as far as they fancy. With a little patience they will find that things will right themselves, gradually assume their true proportions, and they will certainly find that no scientific argument of any real value, and expressed in terms suitable to scientific controversy, will ever be denied admission into these pages, whatever *ology* it may support or oppose.

ANSWERS TO CORRESPONDENTS.

J. W.—The work in question is no longer in the hands of the trade; but if our correspondent will send us his full address, we will forward to him the Number he asks for.

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A MONTHLY RECORD OF

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THE high interest which the Science of Man has of late assumed, the many important questions involved in it, and the constantly increasing number of its students and cultivators, demand more facilities for the communication of facts and the discussion of opinions than our existing periodical literature affords; and it is in view of this demand that the present work is offered to the notice of the Public.

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NOVEMBER, 1865.

ON THE MYTHIC ASPECTS OF ANCIENT AND MEDIEVAL
CHRONOLOGY.

No. I.

THE current of scientific reform is at last steadily, if still slowly, setting in the direction of antiquarian criticism. The startling discoveries of the last few years in post-glacial drifts, and the almost universal recognition by the highest authorities of the important facts which they have brought to light, have broken for ever the chronological spell which had previously fixed such definite and narrow limits to human antiquity. The contemporary of long-extinct mammalia, of the mammoth and the mastodon, of the European elephant, rhinoceros, tiger, hyena, and cave bear, the being who roamed over central Europe when central Europe had an arctic climate, can no longer have his history comprised within the brief space of six thousand years, or possibly even within sixty times six thousand. And thus have the early annals of humanity been removed for ever from the custody of traditional history, while whole literatures of speculative reasonings, accumulated through thousands of years, have been swept away at once from the face of reality by the irresistible pressure of facts.

But it is clear that we cannot stop at this point, that the current cannot here be dammed up. There is no reason why the study of Danish cromlechs should not be as unshackled by history as the study of Danish *Kjökkenmøddings*; why we should not speak as independently of the stones of Carnak as of the pile structures of Switzerland. If we are justified in allowing the peat bogs and diluvial caverns of Britain to supersede all our preconceived notions of antiquity, it will be impossible for us to impose silence on Abury, and Stonehenge, and Silbury Hill, should they happen to unfold a picture out of harmony with the annals of Italy. It is not to be supposed that men who in one section of archæology are in the fore-

most ranks of independent research will long allow themselves, in another, to play the part of mere obstructives; and therefore it is plain that the current of reform must ere long irresistibly sweep downwards from the head waters of primeval times, deepening and widening as it flows, bursting all barriers and carrying away all obstacles, until the long-lost story of human struggle, and suffering, and crime, and glory shall gradually rise up before us under the magic of science, revealing a past as little, probably, like the past of our hypothetical annals as are the great truths of modern geology or astronomy like the dreams of our mediæval ignorance.

There are whole ranges of important monuments respecting which history is absolutely silent, or to which it alludes but faintly, indirectly, or conjecturally: why should we hesitate to study these on their merits, as simple scientific facts, to be judged of, stratified, and interpreted according to the recognised rules of scientific criticism? Why should we feel bound to harmonize them with chronologies or legends which have already broken down in a thousand points, and are perhaps not strictly provable in any? The entire range of American antiquities, the imposing array of the great Celtic monuments—circles, cromlechs, mounds, monoliths—and the still more imposing Cyclopean ruins of Greece, Italy, and Asia Minor—all these may be said to be untouched by history, or, where touched, touched incongruously and ignorantly. Many of these works will, ere long, be found to be far beyond the ken of history, and, step by step, they will gradually be absorbed in the advancing dominions of science. The only wonder is that they are not taken possession of at once.

If we look into our histories with a little of that scepticism which a clear-sighted criticism must naturally evoke, we shall soon see much that is not only unaccountable, but absolutely startling in its incongruity and extravagance; but perhaps, after all, the strangest thing about the matter is the easy faith with which the modern world, after so many experiences, still continues to accept the unproved tales of nations and times so utterly steeped in credulity as to have had a firm belief in the infinite absurdities of Greek and Roman Paganism. How can we reasonably expect that men trained in such schools, and breathing so gross an atmosphere of illusion, should have been clear-sighted and critical in matters of history?

There is surely room for grave suspicion when we find that a history which can give us day and date for Romulus, the son of Mars, and which remembers the minutest details of the battle of the Horatii and Curiatii, which can tell us how the ambitious Tullia drove her chariot over the murdered body of her father, and how the son of the tyrant Tarquin overcame with words of terror the resistance of the chaste and proud Lucretia

—it is surely suspicious that a history which can thus transmit so many pleasant tales; and so many petty wars and domestic struggles, should be all but an entire blank as regards the great story of Etruria, a story which might have been lost for ever had it not literally risen from the tomb before the astonished gaze of modern Europe. The early annals of Rome present to us an Italy almost the counterpart of the Palestine of the Book of Genesis—a country of petty states and kinglets, gradually yielding to the growing power of the youngest and feeblest of them all; and they present these things as contemporaneous with the mid-life of Etruria—a power which held half Italy in its grasp, and probably overshadowed the remainder; a country of great cities, of which even the crumbling wrecks are still imposing, and which has left such vivid evidences of its wealth and refinement on the frescoed walls of its sepulchral chambers.

Of the great Etrurian race, the contemporary, according to history, of the brightest days of Grecian intelligence, a race which in the meridian heights of Roman greatness ought to have been in full possession of all its memories—of this great race the literatures of Greece and Rome tell us less, far less than they tell us of Babylon, of Persia, or of Egypt. Nay, they tell us nothing, directly, beyond a few legends and surmises, which simply serve to show how deep and hopeless was the ignorance which prevailed on a subject of which history ought to have been full if our chronologies are genuine. Dominant races and polished tongues do not thus vanish utterly from the memory of man in times of advanced civilization and wide-spread empire. Genuine history is always full of contemporaneous life, either directly or incidentally; but fable has laws of its own, and is not amenable to the consistencies of nature. To accept Roman chronology is to leave Etruria an eternal enigma: to listen to the language of still-existing facts is to place between the waning glories of this important state and the rising fortunes of Rome a long night of barbarism or of confusion.

But there are things more startling still when we come down to times in which ignorance is even less intelligible than it is in the case of Etruria. In the days of Plato, and Aristotle, and Xenophon, and Demosthenes—in the culminating era of Grecian civilization, empire, art, science, and literature, when philosophers were lecturing, and orators haranguing, and sophists disputing on every conceivable topic in the schools and assemblies of Athens, while their brethren were feasting in the halls of Persepolis, and trampling on the institutions of the great empire of Darius—is it not natural to suppose that Greece must have been filled with tales of the East, with discussions on the languages, and usages, and creeds, and legends, and special arts of Babylon, and Nineveh, and Persepolis? And yet Grecian

literature is almost an entire blank in regard to these things, and quite a blank as regards that special wonder which has so vividly excited the curiosity of modern Europe—the cuneiform writing.

Assuredly there must be something wrong here also. When Greece was thus pouring its legions over Asia, when disbanded soldiers, on their return from the wars, were telling to their wondering families and neighbours the strange things they had witnessed in foreign lands, and merchants and curious travellers were constantly passing to and fro between Europe and the East, is it to be imagined that nothing should find a record in any portion of the literature of the conquering people but the details of battles or the intrigues of courts? Human nature is fundamentally the same in all times and in all places : as it rises in rank and intelligence, so it grows in curiosity ; curiosity, in fact, is the very barometer of its capacity for civilization. We see from what is taking place before our own eyes that such apathy as is here implied, if history be true, could not occur nowadays even in China or Japan ; and yet we are asked to believe that the intellectual and mercurial Greeks were devoid of curiosity, indifferent to news, contemptuously careless in all that concerned barbarians. But the Assyrians and Persians of those days were the reverse of barbarians, and the race that has given us Aristotle and Plato, and Herodotus and Homer, and a whole galaxy of genius and enterprise and heroism, was assuredly never, in the days of its greatest glory, either apathetic or iurcurious. And yet what has classic literature told us of Etruria, of Phœnicia, of Assyria, or of Persia? Historical criticism has utterly broken down in all its attempts to explain this phenomenon, and it is surely time that we should bethink ourselves of appealing to a slower but more competent tribunal.

But all this is but a small portion of our difficulties. Greece passed also into Egypt : a Greek dynasty sat for centuries on the throne of the Pharaohs ; Greek kings were the high priests of the national faith. We see them on the monuments clothed with the attributes of divinity, and addressed as living gods, just as were their predecessors of Egyptian blood. Greek art mingled with Egyptian art, Greek mummies with Egyptian mummies. Alexandria was virtually a Grecian city, and the ascendancy of the Greek mind must have made itself felt in every range of life from the throne to the cottage. Can we for a moment imagine that, under circumstances like these, Egypt should have had mysteries familiar to the native, but inaccessible to the Greek? Is it even to be imagined that a religion whose chief pontiffs were Greeks could exclude Greeks from the subordinate ranks of its priesthood? But, waiving this inference, it is plain that the subjects must, in numerous, if not in most instances, have

adopted the creed of their king, and gradually made themselves, to all intents and purposes, Egyptians ; and yet, under circumstances like these, and in the midst of the highest civilization ever attained in antiquity, a civilization embracing Greece, Italy, Asia Minor, Syria, Assyria, Persia, Egypt, and Northern Africa, there perishes, if history be true, perishes utterly, all that was special in Egypt, except those monuments which, by their vastness or their numbers, have alike defied the ravages of time and barbarism ; except those paintings and writings which have covered every available wall and slab and statue, and then descended into the very tombs and spread over whole generations of the mummied dead ; except things which taxed no memory, and which defied forgetfulness—all that was special in the knowledge and the creeds of Egypt must have sunk into oblivion, vanished from the thoughts of men, in the brightest days of classic literature, in the culminating era of the European mind, leaving no record, direct or indirect, in contemporaneous writings ! This is what we have to believe if we accept our histories, and, above all, if we accept our chronologies.

The religions of antiquity, like other historic faiths, had three leading elements—the gods, their history, and their worship. Of these three categories the history is the most important, for without it all else is meaningless. The mythology of a creed is the life and soul of a creed : if it perishes, all dies ; or if anything remains, it remains only in virtue of its simple materiality : it is a block of stone, or wood, or metal, a statue or a graver symbol. Now the mythology of ancient Egypt has all but utterly perished. What the Greeks have kept for us can be little else but the rakings-up of after times, the echoes of faded traditions, the philosophical speculations suggested by usages of forgotten meaning, or by the paintings and statues which everywhere filled the land. Modern skill has read from the mere monuments more than the ancient writers appear to have known from all sources ; and much of its labour has been expended in correcting the errors, often the very gross errors, which the ancients have committed ; and yet we imagine those ancients to have been contemporaries !

A few Spanish chroniclers have told us infinitely more of the religions and the inner life of Tropical America than all classical antiquity, with all its vast advantages, has told us of Egypt. And yet the Spanish chroniclers wrote on the verge of the dark ages, in the midst of difficulties of every kind, in an atmosphere of superstition, fanaticism, and cruelty ; wrote of a perishing people, of institutions rigorously proscribed, of faiths and legends regarded as inventions of the devil, of gods that had been pounded to atoms, of books and manuscripts that had been committed to the flames ; and all their information had to be collected in a brief space

of time, and often drawn from the lips of shrinking and suspicious natives : while Greeks and Romans entered on a quiet possession, and, with centuries of leisure at their command, have told us nothing ; for what has been told us never could have been written in the days when Egypt had a national faith, a national tongue, and, above all, a national and most peculiar system of writing.

The Spanish historians were anxious to understand the picture-writing of the Mexicans : the Greek and Roman writers, we are required to believe, never felt the least curiosity about the hieroglyphics of Egypt ; or, if that theory does not satisfy us, we have the alternative of believing that the hieroglyphics were a mystery carefully concealed by the priesthood from the profane vulgar and the stranger. But the stranger here was the master of the land, and the priests at best but a class in a conquered nation : how could the servant ostentatiously withhold secrets from the master ?

The hieroglyphics were an institution of every-day life : they were the language of the ritual, they celebrated the praises of the gods and the heroes, and expressed the ceaseless adulations offered to the throne ; they commemorated, on the tombs, the titles and offices of the various dignitaries of the kingdom, and they were wrapped round the bodies of the dead. How could a writing thus universal remain for ages the secret of a class ? Besides, the very fact of its being a secret would have fixed on it the universal attention of strangers, made it an object of research and speculation, and thus, necessarily, a subject of frequent allusion in the writings of the time.

The creeds of ancient Egypt were fundamentally the same as those of Greece, Italy, and India ; and they must consequently have had an analogous, and, in all probability, an equally elaborate system of fables ; and the great antiquity of the country, and the long duration of its creeds, must have given to these fables many curious specialities and many national features, even where the groundwork was the common property of several races. We see that this must have been the case even from the remnants that have actually come down to us. An elaborate pantheon and worship always imply an elaborate mythology, as we see in the case of Rome and Greece, of India, China, and Japan, and even in that of Mexico and Peru, where the means of accumulating and transmitting legends were so imperfect. And yet we are required to believe that the Egyptian mythology, vast and curious as it must have been—a mythology which, even in its wrecks, has powerfully excited the curiosity of subsequent ages, and called forth many vain regrets—we are required to believe that this mythology, possibly in the fulness of its riches, left not an impress on

the contemporaneous literature of the foreign rulers of the land, but passed clean out of the memory of men while polished Greek and Roman were coolly looking on!

With all due deference, we demur to a conclusion like this. We know that history is fallible: we know that the laws of nature are not. Nothing of this kind would be possible in these days, and nothing in the genuine history of the past gives any countenance to the assumption that such things could be possible in the times in question.

But it was not the Greeks alone who were masters of Egypt: Rome also held dominion there for centuries after the Greeks; and the Romans, we are required to believe, were similarly incurious. In fact, it was not till other centuries had passed, until the myths, and philosophies, and histories of the land had actually perished—it was not, in a word, till we finally come down to real contemporaries that the wonders of Egypt begin to find a place in literature; and then it is all too late. Then, indeed, writers show a willingness to tell all they know; but there is little left to tell. Egypt was then a land of mystery, and is spoken of as we moderns speak of the Druids or Chaldeans.

Nor was it Egypt alone, or Persia, or Etruria alone, that was thus served by the ancients. Similar was the treatment received by Tyre, by Carthage, by Spain, by Gaul, by Britain. Who can imagine that a possession of so many centuries should have found nothing more to relate of ancient Britain than the meagre notices in Cæsar's Commentaries? or who that has carefully studied the monuments of this land, unbiassed by history, will bring himself to believe that its inhabitants were blue-painted savages in the era of the Roman conquest?

Assuredly, then, there is a history yet to be written widely different from that of Greece and Rome; a history that will space out, and broadly space out, events and epochs which are now crowded into narrow limits. Tradition has recorded, as best it could, the brighter periods of successive empires; but the long intervening *nights* of confusion or of barbarism which followed those days of glory, and separated empire from empire—these are unrecorded, or measured only by the few flashes of light which break the monotony of their gloom.

Under circumstances like these—and circumstances like these present themselves in all directions—it is in every way unwise to attach such importance to the statements of ancient history as to make them criteria of antiquarian research, rules to which monumental facts are somehow or other to conform themselves. All the statements of ancient writers are sure to be valuable in one sense or other, were it only from the fact that they *are* ancient, and reveal the various aspects of opinion at different

epochs ; but to determine the precise sense in which they are valuable is a task with which criticism ought to end, not one with which it may begin.

It happens, fortunately, that we are not obliged to wait the slow march of monumental archæology before subjecting history to the test of scientific criticism ; for we may at once bring to bear upon it the resources of a kindred science, which, though the creation of the last few years only, and as yet all but entirely unknown, even to special students, is actually more advanced and more fully organized than almost any other section of archæology. It may startle the reader to be told that I speak of *Mythological* archæology, but a little reflection will easily remove the seeming incongruity of the statement.

Nothing, of course, can be wilder than the tales of mythology ; but at the same time these tales *exist*, and in this sense—as simple existences, they are as much and as clearly facts as the bones of the mastodon, or the rocks in which they are imbedded. There is nothing, then, to prevent their being made the basis of scientific comparison, discrimination, and induction. Thus, if we find a given legend common to two widely distant regions, as, for instance, Mexico and Hindustan, and find this legend to be quite absurd in its accepted meaning, while, at the same time, it is so elaborately systematic and artificial in construction that it is impossible it should have spontaneously suggested itself to two distinct nations, it will be evident that at some time or other, in some mode or other, this fable has been carried from one of these centres to the other, or from some third centre to both. If the fable reappears in a third or a fourth region, the evidence assumes increased importance ; and thus, gradually, the case may develop an amount of proof which no scepticism or prepossession can withstand.

On the other hand, it may also happen that of kindred fables one shall plainly be seen to be a derivation of the other : we may even see that a whole system of fables is based on a previous system. In cases like this we may have the means not only of stratifying epochs and formations, but also of tracing the progress of development and the current of thought.

Now it is precisely in this manner that the science to which I allude has been created. An accidental investigation upon a particular topic opened out, unexpectedly, new ground, and awoke new hopes. The subject was eagerly pursued, and the field of research gradually widened, until it at last embraced the entire sphere of universal mythology, as far as its materials were accessible to the inquirer. The result was something wholly unexpected, both in its nature and in its importance. It turned out that there was a class of fables so systematically constructed, and so

peculiar in their meaning and origin, that they bear the same relation to ordinary fact or fiction that a vegetable or animal fossil bears to an ordinary mineral. They can therefore be picked out of a narrative with as much certainty as a fossil can be identified in a block of stone. It further turned out that these fables, though often belonging to different and distinct epochs and to widely-separated nations, were nevertheless, as a whole, intimately related, and thus, by their stratification and diffusion, threw important light on the ancient movements of humanity—on the fluctuations of empire and of civilization in unremembered times.

The fables to which I allude may be classed under the general head of *Zodiacal legends*; for they are all directly or indirectly based on the arrangements of the year and the symbolism of the seasons. Many of them go back to very remote times, and all of them may be said to antedate the introduction of alphabetic writing in the different regions in which they have had their origin.

It has not only been found possible to trace the meaning of these fables, widely diversified as they are in their external imagery, but it has also been possible to trace their general sequence in time, so as to divide them into successive strata, and these strata into greater or lesser formations or epochs. The sequence has been determined by the fact that one formation acknowledges in various ways the pre-existence of another or others, while offering a key to the structure of succeeding ones; and so unambiguous are many of these indications, and so broad and clear the divisions finally established, that we can now instantly refer any moderately well-preserved fable to its proper relative place in the chain, and, generally speaking, trace the structural history of even the most fragmentary legends.¹

From all this it results that a *myth*, in the special and limited sense here implied, is a legend suggested by the symbolic imagery employed for indicating the divisions of the year and the succession of the seasons. It therefore goes back to a period antedating the origin or introduction of alphabetic writing in the region in which the myth took its rise. In its older forms it presents to us a series of four events, or four personifications, representative of the four divisions of the year—spring, summer, autumn,

¹ The first account of the system of mythological interpretation here alluded to was given in a *quarterly* number of the *Ethnological Journal*, published in January 1854, under the title of *Principles of Mythonomy, or the Origin and Development of Zodiacal Symbolism*. The article, which occupies the whole of the number, with the exception of two or three pages, is the first half of a classified summary of the facts, principles, and application of this new science. It is, however, sufficiently complete to give a general outline of the entire subject. The cessation of the *Journal* prevented the continuation of the subject, and the matter has since then remained in abeyance.

winter—and the oldest known myth and symbolism represent these divisions as belonging to the year of a *North Temperate latitude*; a very curious and important fact, and one placed beyond all question by the whole bearing of the evidence.

The oldest known symbolism, that which is directly or indirectly acknowledged by all others, and which has given the key to the meaning of all others, represents the four seasons, by the four elements—air, fire, earth, and water. *Fire* (heat, dryness) typifies summer; its opposite, or antagonist, *Water* (cold, moisture), represents winter; *Earth* (fruitfulness, nourishment, maternity) images autumn; and *Air* (breath, youthfulness, life) represents spring, the season in which all nature bursts into new life. As with the first breath we draw life begins, so with our latest breath it terminates; air is, therefore, in this series, a fit symbol for the season which so directly emphasizes the idea of life.¹

In an era and region in which men were sufficiently advanced to need a careful division of time, and a careful observation of the seasons, but in which they had no graphic system but rude pictures and symbols, it would be easy for them to have a convenient and unambiguous calendar by dividing a circle into four parts, placing in each a symbol of one of these elements, and then subdividing the circumference into days, moons, or any other conventional adjustment. Air might be represented by a bird, water by a fish, and fire and earth by various imitative or conventional symbols.

This was the first stage, a stage only known inferentially, but not the less certain on that account. The fact always before us is the legend only; but now that the key has been obtained the legend presents a symbolism and a sequence in the events which immediately reveal the zodiacal character of the whole story. Until this is perceived, the fable has no meaning beyond its literal import.

The second stage depends on the important fact that the precise length of the year was not known in antiquity, and especially in remote antiquity. There is, we believe, no satisfactory evidence that it was ever recognised in the adjustments of the calendar of any nation before the period of the Gregorian rectification, in the year 1582. But there is evidence, both direct and inferential, that the year of 365 $\frac{1}{4}$ days was very anciently known, and it is probably on this form of year that the zodiacal myth has been based.

From the fact that the length of the civil year was never quite accurate, it followed that it could never, for any long time, keep in harmony with

¹ All these associations will be found fully developed in the paper alluded to, pp. 18 and 19.

the natural year; so that the seasons were constantly occurring earlier and earlier, or later and later, according as the civil year was in excess, or the reverse. In the year of $365\frac{1}{4}$ days, if left uncorrected, the beginning of the year, say the equinox or solstice, would gradually advance on the zodiacal diagram by a day in somewhat less than 130 years, and make an entire revolution in something more than 47,000 years; and this revolution would be in the reverse order of the seasons.

Now we find that antiquity is full of the idea of great cycles of time, through which all things have successively passed or are passing; and the events of these cycles give us the exact symbolism of the divisions of the year. This tendency of the seasons to revolve, as it were, round the calendar or zodiacal diagram, whatever might be the adjustments made as to the length of the year, would seem to have ultimately suggested the idea that this revolution was not a false reckoning—an error in the calendar—but an inevitability of nature, a law of the universe; and out of this belief gradually grew the zodiacal legend.

The oldest known legend, as I have already observed, represents a diagram of four divisions, typified by the four elements, and the sequence of the events is exactly the *reverse* of that of the seasons. As the ordinary year has four great divisions or seasons, the cycle or great year has four great ages, bearing the same symbolic names as the seasons, but advancing in reverse order. The ordinary year has the season of Air (spring), the season of Fire (summer), the season of Earth (autumn), and the season of Water (winter); while the great year has the *age* of Earth, the age of Fire, the age of Air, and the age of Water; thus, with exact symmetry, beginning at the opposite point of the zodiac.

It may be seen at a glance how easily a marvellous story might be based on an arrangement of this kind, and how readily the most ordinary metaphors would supply its imagery. The simple phrase that all things pass successively through earth, fire, air, and water would readily suggest a series of catastrophes: for to pass through earth is to be swallowed up; to pass through fire, to be burned; to pass through air, to be tossed by the winds; and to pass through water, to be submerged: and thus it might come to be believed that the four ages respectively terminated by the four catastrophes of *earthquake*, *conflagration*, *tempest*, and *deluge*; and such is actually the tenor of the oldest known form of the zodiacal myth.

Vestiges of this myth are discoverable in various regions of the earth; sometimes a single catastrophe only being commemorated, sometimes two, sometimes three, and sometimes all four. The idea of the Deluge, as closing the entire cycle, is the one most extensively preserved; then that

of the conflagration.¹ The tempest and earthquake are less emphasized, especially in the great cosmical myths. In the traditions of Buddhism three of the catastrophes—conflagration, deluge, and tempest—are presented in a legend of grand, though barbaric, magnificence; and here the tempest is terminal, for the original myth has been recast and amplified, first in the Secondary, and then in the Tertiary eras. In the mythology of Brahmanism, fire and water also play a great part as terminal catastrophes, though the general legend belongs to late Tertiary times; but there is also a local Hindu tradition which preserves the four catastrophes in their purity and true sequence, with one slight exception.

It is, however, in the traditions of Mexico that we find the purest known form of this important story—the form, in fact, which has given the key of the entire mystery of mythology. Nor is this fact solitary; for we also find in this region more or less well-preserved vestiges of other early symbolisms, and one especially which, as yet, has been found complete nowhere else.

The cosmical legend of ancient Mexico lies at the basis of all the native traditions; and the true sequence of its events, distorted by some of the commentators, has been set to rights by the illustrious Humboldt, to whose great and judicious labours the students of American archæology are so deeply indebted.²

The four ages of Mexico are called in the native traditions *sun*s, doubtless as being great solar periods, just as lunar periods are termed *moons*; and the designation would seem to have suggested the notion that not only men, but the *sun* itself, was destroyed in these catastrophes. As the story stands, then, the Mexicans believed that, besides the sun which now actually illumines the world, four others had existed in as many different ages, and had been successively destroyed, together with the greater part of mankind. The first of these ages was called *Tlaltonatiuh*, literally, *sun of Earth*, from *tlalli*, earth, and *tonatiuh*, sun. It lasted 5206 years, and was terminated by terrific *Earthquakes* and *Famine*; for, as earth was the symbol of autumn, the season of fruitfulness, famine was the natural result of the close of the age of fruitfulness. The next age was that of *Tletonatiuh*, the sun of Fire (*tlētl*); its duration was 4804 years, and its catastrophe a *Conflagration*, which involved the whole earth, and even the sun itself. *Ehecatonatiuh*, the sun or age of Air (*ehecattl*), lasted 4010 years, and

¹ In some of the philosophical speculations of the Greeks the Deluge and *Ecpyrosis*, or conflagration of the universe, succeed each other regularly; and in Christian traditions the Deluge has passed, and the destruction of the world by fire has still to come.

² *Vues des Cordillères*, plate xxvi., fol. and tom. ii., p. 118, &c., 8vo edition.

terminated with fearful *Hurricanes*; and the fourth age, *Atonatiu*, the sun of *Water (atl)*, lasted 4008 years, and ended in a universal *Deluge*. Incidental facts show that the actual age is *Tlaltltonatiu*, the recommencement of the cycle, though I have not met with any direct statement to that effect. In each of these ages a single pair, a man and woman, were saved, and became the progenitors of humanity in the succeeding period; while a certain portion of mankind was also, in each case, changed into some animal form, typical of the element represented. These types, however, belong to formations far later than the story itself.¹

Subsequent events make it quite certain that this symbolism represents a year of the *seasons*, as distinct from a year divided by the equinoxes and solstices. It therefore belongs to a temperate latitude; and the whole bearing of the facts, whether geographical, ethnological, archæological, or specially mythological, clearly prove that this latitude cannot belong to the southern hemisphere. Indeed, strange as may seem the statement in the present condition of antiquarian opinion, the bearing of the evidence distinctly points to North-western Europe, to Celtic Europe, in fact, as the seat of that remote civilization which gave birth to this curious zodiacal adjustment and its consequent mythic creations.

This association of the seasons with the great agencies of nature gradually introduced into the zodiacal diagrams various symbolic representatives of the elements; and these, when they happened to form an harmonious and

¹ The most satisfactory account of this curious legend will be found in Humboldt, who has carefully studied both the Spanish writers and the still surviving pictorial representations. See the *Vues des Cordillères*, as above. The Spanish writers have mostly confused the true sequence of the events, either through ignorance of the proper order to be observed in reading the MSS., or from attempts to make the story square with Christian traditions. The story will be found in Gomara, *Hist. Gen. de las Indias*, fol. cxix.; in Boturini, *Idea de una Nueva Hist. Gen.*, p. 3; in the *Hist. des Chichimèques* of Fernando d'Alva Ixtlilxochitl, published in the collection of Ternaux-Compans, tom. xii., p. 2; in Clavigero, *Storia Antica del Messico*, lib. vi., p. 57; in Vetia, *Hist. Antigua de Mejico*, tom. i., cap. iv., p. 33; in the Anonymous Historian quoted by Gama, *Descrip. Hist. y Chronol. de dos Piedras*, sec. 62, p. 94; and in Lord Kingsborough, *Antiquities of Mexico*, vol. vi., p. 172 (interpretation of the Codex Vaticanus, No. 3738). Torquemada alludes to it twice in the *Monarchia Indiana*, lib. i., cap. xiv., and lib. vi., cap. xlv. It is, of course, often referred to by recent writers, and has been very carefully considered by Mr. Gallatin (I quote for the moment from memory) in his elaborate memoir on Mexican civilization, in the first volume of the *Transactions of the American Ethnological Society*. A fac-simile of the curious native picture of these four ages is given in Lord Kingsborough; and Humboldt also has a copy perfectly faithful, as far as all mythic purposes are concerned, though in a firmer and more artistic outline than the original.

suggestive sequence, gave birth in their turn to some new legend, which, though widely differing in imagery, still had the same fundamental meaning as the original myth. Several such symbolisms are now known. Thus the four divisions of the year have been represented by four typical animals; by the four phases of the day—Morning, Noon, Evening, and Night; by the four phases of human life—Infancy, Youth, Maturity, and Old Age; by the four typical parts of the body, and so on; all of them giving birth to curious and varied legends. To one of these we may briefly allude, as showing how readily an identical meaning may be combined with an entirely distinct external imagery.

To represent pictorially the phases of the day, recourse was had to colours. Noon, the time of greatest brightness, was represented by white; its opposite, night, by black, and also by blue, the colour of the cloudless sky of night. The colours of morning and evening were necessarily taken from the characteristic points of sunrise and sunset, and became red for morning, and a golden yellow for evening. With these colours was gradually connected the idea of the four principal metals—gold, silver, copper (ultimately brass), and lead, or tin (ultimately iron); and hence arose the great story of the four metallic ages of Græco-Italic tradition, which, as described by Hesiod and by Ovid, presents a series of pictures strikingly typical of the phenomena of the seasons, and of various symbolic associations connected with them.¹

This myth, which ranks next in interest and importance to the elemental legend, has introduced into mythology the great doctrine of progressive degeneracy, a doctrine so curiously elaborated in Brahmanical and Buddhist fable.

These few remarks will give an idea of the generation of the zodiacal myths, as well as of the analytical resources which they supply, and the sequences in development which they reveal, and which often enable us to speak with entire confidence of their relative age.

The two myths now described make no reference, one way or other, to the division of the year by the equinoxes and solstices; but we find a class of fables based upon them which present new and curious features, and unmistakably imply that particular adjustment. In these the year begins at the winter solstice; the cycle, as before, commences with the age of Earth and Autumn, but ends at the winter solstice and with the age of Air; while the age of Water is viewed as a period out of the cycle—a period of rest, sleep, emptiness, or chaos intervening between the close of one cycle, and the commencement of the succeeding one. By these peculiarities the forma-

¹ *Principles of Mythonomy*, pp. 30—34. It may be as well perhaps to state that a few copies of this memoir are still in the hands of Mr. Trübner.

tions of the two eras, which I have termed respectively Primary and Secondary, are kept broadly distinct in every point of view. They cannot, indeed, be confounded.

It is this adjustment which has given birth to the great triadic myths, which, whether cosmical or personal, always imply a fourth element, represented in the personal myths as an antagonistic power; as, for instance, the Demons in the Hindu triad of Brahma, Vishnu, and Siva; Typhon in the myth of Osiris, Isis, and Horus; and so on.

Finally, we come on a set of fables in which the sequence of events is exactly reversed, the four ages following in the order of the seasons. These fables constitute the Tertiary formations; and this difference of sequence would alone prevent the possibility of their being confounded with previous formations, even in the absence of the many other evidences of succession and development which they present.

From the dawn of mythology to about the middle of the Tertiary era the symbolism of the year and cycle presents but four elements; but in the Tertiary era we have formations which recognise a year of *five* divisions, and later still, *seven* becomes the number. Finally, there follow, in clearly marked succession, zodiacs of *nine*, *ten*, and *twelve* divisions, and, still later others of *fourteen* and *twenty-four*, and ultimately the lunar zodiacs of *twenty-seven* or *twenty-eight* divisions. These are the chief, though not the only known arrangements of the Tertiary year which mythonomical analysis enables us to speak of with scientific certainty; and of these the systems of four, five, seven, and twelve divisions are the most important and wide-spread formations.

Out of these various adjustments we can now see the successive emergence not only of the great cosmical, personal, and other religious myths, but of almost every form of ancient fable that has made any substantial impress on the minds of civilized men. Sometimes we can trace, with more or less of probability, the proximate seat of origin of leading myths, and the greater or less extent of their diffusion; and it may easily be imagined that the bearing of such evidence on the history of remote times must be a matter of extreme importance. Even already we may confidently make a few broad statements of a very startling nature.

In the first place, it is now clear that the nations of Mexico were in connection with the civilized races of the old world in the early Primary times, and then that all mythic evidences of interrelation disappear completely until about the middle of the Tertiary era; for the mythology of Mexico presents us with middle and late Tertiary formations directly seated on the early Primary myths and symbolism, while these Tertiary formations are clearly exotic in all their essential features, and it is only

in the old world that their history can be traced. Thus Mexico exhibits, during the long and diversified ages of the late Primary, of the Secondary, and of the early Tertiary eras, if not an absolutely stationary condition as to creeds and zodiacal usages, at all events an absence of all formations inconsistent with the arrangements of the Primary cycle. And what is here said of Mexico will, we think, be also found true of America generally, with the exception of Peru. Here we meet with distinct traces of the metallic symbolism in Primary or Secondary order.

Now the mythic evidence coincides with monumental and linguistic indications in pointing to Western Europe as the region from which Mexico derived its early Primary myths and symbolisms, and with them, of course, its early civilization. It is with the Celtic and so-called Druidic remains—with the cromlechs, circles, and great mounds—that the early Primary formations appear to synchronize; while everything points to Greece and Italy, and the era of the Cyclopean structures, as the place and period of origin of the Metallic symbolism and myth.

Western Asia has distinct claims on the Quinary and Septenary zodiacs and fables, as well as on the gorgeous Tertiary elaborations of the great cosmic myths, and it distinctly appears as the principal focus of civilization in the earlier half of the Tertiary era. The later myths, based on the zodiacs of fourteen, twenty-four, and twenty-eight divisions, are exclusively Asiatic.

The zodiac of *twelve* divisions is the terminus in Europe; and here it probably originated. Late as it is, mythonomically, it far antedates all history; for it has not only given origin to a great variety of myths, but even its existing symbolism, which is obviously but one of many series, was put together at a time when the import of the different types was well known, and when, consequently, picture-writing was an existing institution in the most civilized regions of the world.

At last the alphabet appeared, and symbolic picture-writing, in all its forms, melted away before its face, and the tradition of its meaning gradually faded from the memory of men. Thenceforth all normal mythic growth, in the technical sense here implied, was inevitably arrested, and nothing remained for future times but to collect and preserve the old materials, or to modify and expand them incongruously.

The era of the alphabet is so remote in Europe and Western Asia that not a vestige or a tradition of the old picture-writing of these regions has come down to historic times; but, in presence of the evidence furnished by mythic analysis, it is impossible to doubt its former universality wherever there existed any considerable civilization.

If these views be correct, even in the most moderate degree, it is easy to

account for previous failures in mythic interpretation. No one, we believe, ever looked to any older or simpler zodiacal scheme than that of the year of twelve divisions; and, of course, if the views now propounded be correct, it was impossible, on such a basis, to give a consistent explanation of any zodiacal myth whatever, still less of the great cosmic and quasi-historic legends. We have had numberless ingenious, and some successful *fragmentary* interpretations, but I know of no single myth which has been consistently explained as a whole. Now we can explain fable after fable in their minutest details, and upon one common set of principles, and can often trace the genetic history and the successive modifications of all their elements. These views, therefore, coming, as they emphatically do, in the form of a *bonâ fide* physical science, and asking to be tested by the most stringent rules of inductive reasoning, may well claim an examination on their own merits, notwithstanding the failures of all previous attempts in this direction; for no one has ever before pretended to have evolved an organized inductive science out of the chaos of mythology.

Of course this rapid and imperfect sketch is now placed before the reader, not for his present acceptance—that would be altogether premature—but simply for the purpose of rendering intelligible the mode in which it is proposed to treat the curious and important facts which will be brought before him in the next and succeeding papers. In these he will have materials in sufficient detail to make it easy for him to come to a decision in regard to their meaning and value; nor will he, we think, be a little startled to find some of these materials subsequently turning up in times and places in which no one would ever have thought of looking for them.

L. B.

THE ASTRONOMY OF THE OLD WORLD.

THE intimate relation of the present with all the past man but faintly realizes. In some things we cannot, indeed, fail to have impressed upon us, that but for the past, the present could not have been. But this comes home to us chiefly with reference to those arts and sciences in which there is continual progress, through our constant endeavours to improve upon what has gone before: in a word, with respect to all that is included under the term "material civilization." The majority even of what are called new inventions are but improvements on previous inventions. A perfectly new invention, entirely dissociated from anything, either analogous or similar, before existing, is extremely rare; and the importance of this

knowledge of the past, if any doubt it, may best be proved by our knowledge of the previous existence of certain "lost arts," which, their traditions being once broken, cannot now be recovered, notwithstanding our general advancement in that science or *knowledge which is power*. The pyramids of Egypt are no "wonder of the world" to the vulgar merely: they are the admiration and wonder also of our architects and men of science. But, to take a more homely instance, it has baffled us in the present day, with all our modern aids, to engrave or cut a gem in the manner of the ancients!

But, besides these arts and sciences, in the advancement of which mankind is ever busily occupied, there is a wide domain of human tradition by which we are influenced almost unconsciously, and which we ourselves are continually modifying almost without being aware of our doing so, and at least entirely without any positive intention. Of this kind are the language and historical traditions that we have inherited, but which become gradually changed and modified in their current use and transmission from generation to generation. The new science of comparative philology is beginning to reveal to us the enormous extent of this kind of unintentional modification which has taken place in the language or speech of mankind. But our knowledge of the marked difference in the literature of our own day with that of the last century, or even our observations of what the English language is in England and America now, or of the periodical variations in colloquial expressions, and in what we call "slang phrases," in the course of a very few years among ourselves, might have enabled us almost instinctively, and on *a priori* grounds, to conclude that such great variations must necessarily have occurred in the course of ages, even between nations and peoples who may have had a common origin.

In the comparative mythology and traditions of peoples we have similar evidences of seeming chains of intercommunication, which link the present with the past, and the most distant and diverse nations and races one with another.

Some have ingeniously endeavoured to account for such an apparent community of thought in the languages and mythologies of various races, by attributing them, not to a common origin and traditional transmission, but by regarding them as independent inventions and products of our common nature. But such an hypothesis is beset with difficulties. In language, for instance, as we have already seen, the tendency appears to be to variation in development, in different degrees and in different directions, away from the original common roots; such development differing among different peoples, and not in the least degree tending towards the reproduction, at different times and from independent sources,

of similar ideas. In truth, such a theory is dead in the face of the facts to be explained.

In matters of invention, no doubt, relating to the wants and necessities of mankind, the same ideas are occasionally rediscovered or reproduced without any conscious knowledge of the prior existence of the same things by the new discoverers. This fact, indeed, gives some colour to the theory referred to, that would endeavour to account for everything among mankind, where traces of similarity are to be found, upon the same principle. But even in language, as has been observed, such an hypothesis quite breaks down ; and it is even less tenable when applied to what is so arbitrary and artificial as the mythologies of a people.

In all languages there are occasional words obviously invented in imitation of the sounds they signify ; and some have therefore thought all language could thus be accounted for. Mr. Max Müller very properly characterizes this as the *bow-wow* theory. It seems only to be fit to account for the language of children, who, probably, wherever the sheep may be found, will refer to it as a *baa*, in imitation of its cry. But such a simple theory at once fails us, in attempting to account for the names of *sheep* and *lamb* given to these animals, or of *ovis* and *agnus*, as applied to them, for example, in Latin. In fact, in the great majority of words in all languages, among those of the rudest communities as well as the most civilized and polished, there is not the slightest connection between the sound and the sense of words ; and in most cases also, where some such connection is supposed to be perceived, it is due to imagination and the mere association of the ideas connected with the words in our minds from constant habit. Indeed, the *bow-wow* theory goes utterly astray in its chosen examples ; for to describe a sheep as a *baa* is to misapply that word, since it only is descriptive of the sound the animal makes, and not in the least of the animal itself. Take one other instance : the plover is also called the *lapwing*, which describes its action when disturbed ; and in Scotland it is called the *peewit*, which is imitative of the cry it utters in the same circumstances. The latter name is analogous to *baa* : it describes, not the bird, but the bird's cry. And *lapwing* is applicable, likewise, not to the bird, but to its mode of flight ; while at the same time there is no real connection in sound between *lap* and *wing*, and the ideas for which they stand. The association of ideas between the word and what we mean by *flap* may give an imaginary fitness to the word *lap*, to express what the *lapwing* does, but that is all ; and *wing* may in like manner be connected ideally with flying, but scarcely more than ideally. To show the force of mere imagination in all such cases, let us consider the ideas suggested to our minds by two cognate words, *rush* and *crush*.

It is scarcely too much to say that the one signifies the most rapid motion, and the other a condition of things in which motion is totally arrested ; and yet it would be hard to say which of the two, from their mere sound, appears to be the more expressive of what they signify. Then, again, while to *rush*, or *fly*, or *run*, all alike in our imaginations, are suitable in expressing by their sounds the same idea, the three words themselves are in their sounds totally different.

The argument derived from what is called gesture language or pantomime is of the same literally childish kind. For deaf and dumb persons, or two strangers to one another's speech, to point to the mouth, or to touch the stomach, in order to signify hunger or the desire for something to eat, is no doubt extremely natural ; but the range of such an imperfect language soon becomes extremely circumscribed, unless some artificial system of arbitrary signs is had recourse to as a substitute for articulate speech. And it is a remarkable circumstance that those who have pointed to such gesture language, as probably "the first used by mankind in their advance beyond the brutes," have overlooked the fact that nothing in the least like it is to be found among the inferior animals themselves. Not even a monkey (unless previously taught to do so) has been found to point to its mouth or to touch its belly, as a means of indicating a desire for food. So that, in calling such a gesture language natural or even instinctive, we can only mean that it is "natural" for beings who have intelligence and reason to use it, when unable to use their tongues to express their thoughts.

The varied and distinctive sounds and cries uttered by various animals are all arguments against the *bow-wow* theory. Each bird and beast has its own distinctive utterance vastly dissimilar, showing that even in them their language (if we may so style it), in its sounds, has no connection with what the sounds express. For we may consider it certain that pleasure and pain, hunger and satisfaction, are more or less the common meaning of all the varied and diverse cries of the lower creation. Thus the barking of dogs, the bleating of sheep, the lowing of cattle, the song of the nightingale, the screeching of the owl or cockatoo, even the braying of asses and the cackling of geese, are all so many arguments, if well considered, against the *bow-wow* theory of language ; which men have invented to account for their own most wondrous gift of speech ; which is theirs by nature, and yet which must be taught from parent to child, and from man to man, or we should sink into much worse barbarism than has ever yet been discovered among savage races.

Still, as language is a necessity for mankind, that fact may be made the foundation of such a theory of language with at least some slight degree of

plausibility. Not so however as regards the myths or traditional tales of peoples. The purely arbitrary character of the fables recounted among all peoples—if we once suppose they have no common foundation in realities—gives to such coincidences, as may be discovered between the traditions of one people and another, a significance which not even the apparently common roots of two languages can possess. Even the number of vocal sounds has a limit. But there is practically no limit to the objects of the imagination and the variations of an unfettered fancy; and yet there is a remarkable coincidence of ideas in the oldest myths and legends of most nations and races, savage and civilized. It is difficult indeed to account for this rationally, except upon the hypothesis of original derivation and actual intercommunication between the various races of mankind.

The work¹ to which attention is now about to be called furnishes a fresh argument in favour of the theory which assigns to all mankind a common origin. How Astronomy can be pressed into the discussion may naturally excite surprise in some minds. But that it legitimately bears upon it will best be proved by considering briefly the argument employed by Mr. Bollaert, a polygenist, in his *Memoir on the Astronomy of the Red Man*, published by the Anthropological Society of London (vol. i., pp. 210, *et seq.*)

Mr. Bollaert takes the astronomy of the red man as far as possible at the period of the discovery of America by Columbus as the basis of his argument, in order to disprove the common opinion that the course of population in America has been from north to south—a view which is based upon the idea that the New World was originally peopled from Asia. And, weighing all he can ascertain respecting the astronomy of the New World, he comes to the conclusion that there are but scanty proofs for such an inference. As a polygenist Mr. Bollaert supposes the red man to be a separate creation, and considers that all which can be traced in regard to him, including his astronomical and other forms of intelligence, supports that conclusion. Such is his judgment, though he is perfectly aware of the great antiquity usually assigned to astronomical science. “Writers on astronomy,” he says, “are agreed that the heavenly bodies claimed very early the attention of man. The first periods were counted by seasons, then by suns or days, by moons or months; after which the apparent annual revolution of the sun gave the idea of a year. The sun, possessing so benign an influence on animal and vegetable life, became the object of worship in the earliest periods of all nations.”

¹ *Mazzaroth, or the Constellations*. In Four Parts; to which is appended, *Misraim, or the Astronomy of Egypt*. By the late F. Rolleston, Keswick. (London: Rivingtons, 1862—1865.)

Commencing with the United States—the Natchez tribes, the “six nations,” and other peoples of the Northern Indians—he proceeds to the Texas, and thence to Mexico (which occupies the greater part of his researches), Patagonia, and Peru. In fact, it may be said he well-nigh exhausts the subject in an elaborate and interesting memoir of some seventy pages. He treats of the “Calendars” of all the peoples of the New World, of their “Astrology” and their “Astronomy” proper; in which term he includes their cosmical ideas as to the causes of eclipses, their knowledge of comets, &c., and any traces of “astronomical instruments” which have been found among them; also their zodiacs, and what appears with reference to what we call “the constellations;” and he sums up the whole inquiry as follows:—

“*Conclusion.*—(1) Following the authors of *Types of Mankind*, with whom I perfectly agree, inquiry into the astronomical knowledge of the Red Men, their arithmetic, division of time, names of months and days, shows that *their whole system was most peculiar, and, if not absolutely original, must antedate all historical times, since it has no parallel on record.*

(2) “Almost all the nations of the New World appear, in their first attempts to compute time, to have resorted to lunar months, which they afterwards adjusted in various ways, in order to make them correspond to the solar year.

(3) “What is remarkable is, that the calendar of Peru affords proofs, not only of astronomical observation, and of a certain degree of astronomical knowledge, but also that their origin was independent of that of the Mexican and Muizcas of Bogotá.

(4) “If, then, the Mexican, Muizca, and Peruvian calendars were not the result of their own independent observations, we must suppose a triple importation of astronomical knowledge.

(5) “Assuredly, then, the astronomical knowledge of the aboriginal Americans was of domestic origin; and *any of the few points of seeming contact with the calendars of the old world, if not accidental, must have taken place at an exceedingly remote period of time.* In fact, whatever may have come from the old world was engrafted upon a system itself still older than the exotic shoots,

(6) “But, if it still be contended that astronomy was imported, why did not the immigrants bring in an alphabet or system of writing, the art of working iron, mills, wheelbarrows—all unknown in America; or, at least, the seeds of rice, wheat, oats, barley, &c., of their respective botanical provinces? Alas! sustainers of the *unity* doctrine will be puzzled to find one fact among American aborigines to support it” (pp. 278, 9).

I have numbered the paragraphs in the above quotation to facilitate reference, and have put a few significant sentences in italics, as the briefest mode of showing that even in Mr. Bollaert's own summing up there is a virtual admission that some of the facts he adduces might fairly lead to a different conclusion than that at which he arrives. There are two important *ifs*, it will be observed, in the 1st and 5th paragraphs, notwithstanding the concluding words of the 6th.

Now my primary object at present is not to controvert Mr. Bollaert's views in the premises; but to argue, that if his argument—granting the premises, and granting the conclusion—is good as *against* “the sustainers of the *unity* doctrine,” then, had the facts warranted an opposite conclusion, such a conclusion would have been equally good *in support of* “the unity doctrine.” This is precisely what follows, as regards the old world, from the extraordinary accumulation of facts, and of direct and incidental proofs, to be found in *Mazzaroth*. Perhaps, indeed, it may not be saying too much, were we to deduce it as tacitly proved from Mr. Bollaert's own memoir, that, in his opinion, all the astronomy of the old world has one common origin, since he only ventures to say it is not quite proved that the astronomy of the red man is also derived from the same source. If so, even this would be a strange conclusion, as bearing upon the monogenous and polygenous theories; for it would only furnish us with a separate origin for the red-skins, as being all comprehended in the Americas; while the white man and the black and yellow races, all belonging to the old world, would thus be relegated to one common origin, so far as the astronomical argument could settle the question. This would be a *reductio ad absurdum*, from an anthropological point of view. For we may say that there are greater affinities between some of the white races and some of the red-skins, than between the whites and either the black or even the yellow races of mankind. As, for instance, we find that the Europeans transferred to North America have in a few generations become somewhat changed in their type, approximating to that of the aboriginal Indians in form, physique and features.

The weak point in Mr. Bollaert's reasoning arises from his not discriminating between the very different classes of facts he has collected together, and their differing value for the purpose of proving his conclusions, or the contrary. Not that he has failed to do this, to suit his own views. On the contrary, his conclusion (No. 1), derived from the fact (which may be admitted) that the red man's arithmetic, division of time, names of months and days, are most peculiar, and might well be acknowledged as without parallel in the astronomy of the old world, and as therefore being absolutely original; all this might be granted, and yet might prove next to nothing. Any people, though cut off from all tradition of the past, might easily, and would almost necessarily (if not sunk in the lowest barbarism), establish some system of computation by days and months, from the apparent course of the sun and moon, as obvious and natural divisions of time; and such divisions of time must necessarily so far correspond with the days and months elsewhere, making some allowance for periodical differences in different degrees of latitude. No people could of course help

noticing the course of the sun in a day, or fail to observe the changes of the moon. So far similarity of "astronomy" need imply no common origin whatever. To arrive at the computation of a year, however, implies a vast advance upon reckoning by days and months. But even this problem is more or less difficult, for careless observers, according to the latitude where men live. In polar regions the summer and winter, by the presence and absence of the sun, divide the year in as marked a manner as the varying moon with us does the weeks and months, or the sun the day and night. Within the tropics this is not so.

But Mr. Bollaert, in his 2nd conclusion, speaks as if reckoning primarily by months (instead of years) was peculiar to the New World, when the probability was that this too was common to the old world; for it is with good reason supposed to be the original method of the oldest civilized peoples—the Hindoos, Egyptians and Chinese. In his 3rd and 4th conclusions he does not seem to contemplate any possible corruption or improvement in any system of astronomy which may have once been established. If we only suppose this, these conclusions fall to the ground. So also with his 5th conclusion. It by no means follows from anything he has adduced, that if the points of contact took place at a remote period, then what may have come from the old world must therefore have been engrafted upon a system still older. The reverse is just as probable, to say the least. In his 6th conclusion he furnishes the explanation of the whole difficulty of the case. For had a system of writing been introduced into the New World from the old—that is, had a knowledge of letters been common among men when, let us suppose, the American tribes separated from the parent stock and began their migrations, then of course a fuller knowledge of the primitive astronomy would have been retained, and the points of contact or agreement between the astronomical system of the Old and New World would in that case have been infinitely greater.

But it is time to consider what are the points of agreement between one system of astronomy and another which would best serve to prove a common origin. We have already seen that the simplest divisions of the calendar into days and months would have the least value in this respect. It is not, of course, intended to be denied that an argument might not be fairly established even upon this ground, especially if in many points of detail there were minute coincidences. And so, as regards the dividing of the months into years, the argument from similarity between calendars might be sustained, if there happened to be striking coincidences as to the intercalary days, or in other points on which there is room for considerable diversity, and as to which there is great room for variety of error before precise accuracy can be attained. But what I wish to show is,

that, as all arrangements of the calendar are but attempts to interpret in the best manner certain recurring visible facts of nature which repeat themselves before our eyes, therefore coincident interpretations which diverse nations may have adopted of these phenomena of nature afford the weakest argument possible of their common origin. The simple divisions of time into days and months are but like the rudimentary gesture languages that point to the mouth to signify hunger, or to the sky to signify heaven ; or like the *baa-lamb* of the child that in speaking joins mere sound to sense.

From coincidence or similarity in the theories of physical astronomy a stronger argument might be adduced. But even here we are on treacherous ground. So far as mere vulgar ideas of the cosmos are concerned, deduced from the first appearances of things, no argument could well be sustained from the fact that such notions were similar. Perhaps every child has at one time thought, or been impressed with the notion rather in the absence of thinking, that the earth is a level plain of a circular form, with the sky as a hemispherical canopy above. The notion of the "world's end" might well be invented independently in every nursery ; and the universality of such ideas would not prove a common tradition, but only the commonness of ignorance.

In like manner the notion that the earth is in the centre and at rest must be natural and common to all people, without any necessity for tradition to account for it. Not so the heliocentric hypothesis. From that, if found among widely distant nations, a community of teaching might to some extent be fairly presupposed ; and yet the history of physical astronomy goes to prove that such an argument would not be conclusive. For instance, although Pythagoras taught a heliocentric system of astronomy, it could not properly be argued that Copernicus, when he revived that theory 2000 years afterwards, had borrowed from the "first philosopher ;" though Copernicus had doubtless a knowledge of the theory of Pythagoras as well as of the Egyptian system and the hypotheses of Apollonius and Heraclides. And, were the heliocentric system yet abandoned in our own day or hereafter, this, we may be certain, would not be merely because of the geocentric systems previously in vogue, though a knowledge of them is extant, but because of new difficulties discovered in the current theory, or because some difficulties which were supposed to lie against the geocentric theory, when physical laws were less understood, may now have disappeared through our greater knowledge of electro-magnetic influences and of the variations in the laws of refraction which affect all astronomical observations. The idea of physical astronomy ever again becoming so completely revolutionized may seem monstrous to those who have not gone deeply into

astronomical problems; but it should be remembered that, even when the subtle forces of nature were very imperfectly known, and when the heavens were supposed to be regulated by geometry and mechanical arrangements of various circular movements, even then the two greatest mathematicians who ever lived, Euclid and Archimedes, as well as Eudoxus, Hipparchus, and Aristotle, all "deliberately preferred the geocentric solution of the astronomical phenomena."¹ The probability of such a revolution of thought is, however, not here the question, but only the probable grounds on which it might possibly take place. I merely wish now to show that even the reverting to a geocentric system of astronomy would be no proof that any future geocentric hypothesis which mankind might possibly accept owed its acceptance to (say) the old Ptolemaic system, and that the existence at remote periods of two geocentric theories would afford no proof of their common origin, any more than that the systems of Copernicus and Pythagoras were traditionally connected, simply because both are heliocentric systems.

I may further observe that in our own day there are physical theories of an absolutely contradictory character put forward as probable truth. One instance must suffice, however; but it is a marked one,—one of the two conflicting theories having been prominently recognised in 1863 by the President of the British Association for the Advancement of Science, and the theory diametrically opposed to it having recently (in March 1865) been propounded by its author before the Royal Society without a single objection being there raised against it. The first of the theories I refer to is that of which Professor W. Thomson of Glasgow (whether he is its original author or not) has been the chief advocate for some years—namely, that the sun must be losing its material substance to an enormous extent by the radiation of the heat emanating from it, and that this waste must necessarily be supplied by meteors constantly falling into the sun. M. Pouillet, one of our modern men of science who has identified himself with this speculation, calculated that the radiation of the sun's heat must be, in a single year, equal to the combustion of a stratum of coal enveloping its body of no less than seventeen miles thick! And, adopting this theory, Sir William Armstrong, as President of the British Association for the Advancement of Science, in his Address delivered at Newcastle-upon-Tyne in August 1863, thus accounts for the brilliant appearances sometimes observed upon the sun's surface. He says: "On 1st September, 1859, a sudden outburst of light, far exceeding the brightness of the sun's surface, was seen to take place and sweep like a drifting cloud over a portion of the solar face. . . . If conjecture be allowable in such

¹ *The Astronomy of the Ancients.* By Sir G. C. Lewis, Bart., in loc.

a case, we may suppose that this remarkable event had some connection with the means by which the sun's heat is renovated. It is a reasonable supposition that the sun was at that time in the act of receiving a more than usual accession of new energy; and the theory which assigns the maintenance of its power to cosmical matter plunging into it, with that prodigious velocity which gravitation would impress upon it as it approached to actual contact with the solar orb, would afford an explanation of this sudden exhibition of intensified light, in harmony with the knowledge we now have, that arrested motion is represented by equivalent heat."¹ Several papers, claiming to have a scientific value, were read on this subject before the Royal Society of Edinburgh by Professor W. Thomson of Glasgow, who also ventilated the subject (to use a vulgar modern phrase) popularly in *Macmillan's Magazine* for March 1862. Several other professors, such as Professor Tyndall, of the Royal Institution of Great Britain, appeared to regard this theory as scientifically established; and I believe no professor or reputed man of science ever ventured to say a word against it. And yet, March 1865, Mr. Brayley, F.R.S., of the London Institution, read a paper before the Royal Society of London, in the presence of many men of science (including Newton's successor, the present Lucasian Professor of Mathematics at Cambridge, who is also one of the secretaries of the Society, and Professor Tyndall), in which the sun is made to throw off meteors as it rotates on its axis, and thus to form the planets revolving round it, constituting the solar system. I do not go into the character of this speculation here, further than to notice, as I did to the author the evening he read his paper, that it is a flat contradiction to the other theory before referred to, which has been paraded as probable truth for years by men of science. It is also contrary to the whole Newtonian theory of the sun as a centre of attraction of the solar system, with a definite mass upon which the motions of the planets must depend. In that respect, however, it may not be worse than the theory that regards the sun as wasting away and drawing cosmical matter continually to itself, instead of being the centre of a once "balanced" system of bodies under opposing forces.

What I wish to draw special attention to is the co-existence of glaringly inconsistent theories of physical astronomy among modern men of science, who profess to be agreed as to "the mathematical principles of natural philosophy," and to hold as certain truth the same physical laws and principles; for this shows that neither similarity of opinions nor the

¹ On this subject *vide Victoria Totò Carlo*; or, *Modern Astronomy Recast* (Hardwicke, 1863), pp. 36, *et seq.*

greatest diversities can be taken as proving common traditions, nor the contrary, so far as physical astronomy is concerned.

This being the case, it may naturally be asked, How then can any conclusion, either for or against a common origin of mankind, or even as regards the probable source of their traditions, be possibly established by means of astronomy? If their calendars, or divisions of time, can throw no certain light upon the matter, and their cosmologies or physical theories of astronomy, as would appear, still less, what remains to be adduced as an argument from the ancient astronomies?

These questions are pertinent, but the answer to them is complete. Everything that nature might suggest as the basis of a system, either of practical or physical astronomy, may be given up, as least likely to afford a safe basis for an argument on the question at issue; simply because what nature suggested to the people of one nation would likely be suggested to other peoples. But still there will remain the arbitrary grouping of the stars into Constellations of fanciful form, as to which nature suggests nothing whatever. It is in this respect that *astronomy* (in its primary sense) may furnish a most important quota of proof as to the ancient intercommunication between peoples and races, even more convincing than any derived from comparative philology, comparative mythology, or the common traditions of mankind.

It is to establish nothing less than this that the work before us has been written. How far it has succeeded in doing so we must not now venture to pronounce. It has put forward its claim, however, very intelligibly; and it is for those who cannot accept its conclusions to refute its arguments and proofs.

(*To be continued.*)

SAVAGERY AND CIVILIZATION.

I THINK I can guess the reason why the author of a paper on the African Negro, read in the Geographical and Ethnological Section of the British Association at Birmingham, maintained, when challenged by a contributor in your last Number, what that gentleman is pleased to call an "ominous silence" touching a certain theory propounded by himself. The explanation, I fear, amounts simply to this, that the author of the paper may have thought the theory the mere coruscation of a too exuberant fancy, which

needed no extinguisher. But, as your contributor now repeats his challenge, and, above all, as this is not the first time that the strange crotchet has been propounded, I shall attempt a refutation of it.

The ordinary meaning of the word "civilization" is reclamation from the savage state. Man is usually considered to have risen through an accumulation of knowledge in the course of ages to civilization, necessarily a relative and indefinite term. Your contributor's theory inverts this seemingly natural order, making man's career to begin with civilization, and to end with savagery. He feels that the task he has set himself is not an easy one, and his first step is to get rid of the ordinary meaning of the word "civilization," which he denounces as "vulgar and technical," and to substitute a more convenient one of his own. These are his own words: "I argue that civilization (in this proper sense) must always have existed since man was. We are not, of course, concerned with minor details respecting the various phases into which civilization may have been developed. I speak of 'the civilized man' only as an elevated, intellectual, and moral being, apart from his peculiar circumstances." In another place he observes, "I hold that the first man and first woman, as they came fresh from their Creator's hands, were perfect of their kind; and, if not 'civilized' in our modern vulgar and technical sense, yet that they were endowed with the highest intellectual capacity and the highest moral sentiments, and enjoyed completely and superlatively the *mens sana in corpore sano*. This is, of course, to be essentially 'civilized' in the only possible sense for a new-created rational being, before man's 'many inventions' were discovered. It accords with Solomon's declaration, that 'God hath made man upright.' . . . And, as I know of no imperfect lower animal (save as an exception that would prove the universal rule of the perfection of what we call 'nature'), I argue that by nature man also was in perfection originally, whatever he may since have become. Every inferior animal, whether beast, bird, fish, or insect, being perfect in its instincts, the great solecism in life is savage man, or the civilized man who degrades himself."

For the purpose of his argument your contributor sets aside the distinction between the reason of man and the instinct of the lower animals. Save what is indispensable to the preservation of life and the continuance of his race, man is guided by reason, not by instinct, and the lower animals by instinct only, without which they would not exist at all. Man accumulates knowledge, and hands it down for the use of posterity. The lower animals are one and the same always. Four thousand years ago the bee constructed its hive with incomparably more skill than his contemporary, man, made his hut. The bee makes its hive now precisely as

it did forty ages ago; but man, who began with a hut, has learned to build houses, palaces, and temples.

But let us see what the supposed civilized man and woman of your contributor must have been when first created. If they had the persons of the Apollo and the Venus, and the brains of Newton and Elizabeth, they must still have been cowering, helpless savages, for they had everything to acquire. They were born with brains to contrive and hands to execute, but both dormant until developed by use. The imaginary civilized pair must have been at first without language, without fire, without tools, without clothing; they had to learn even to walk and to run, and climbing and swimming must have been yet later acquisitions. They must have fed on the dead carcasses of fish, reptiles, birds, and quadrupeds, or starved. In fact, the civilized man of your imaginative contributor turns out to be a more arrant savage than a native of Australia, of Tierra del Fuego, or of the Andaman Islands; for all of these had made some small progress.

How the declaration of Solomon, that "God hath made man upright," comes to be in accord with the paradox, is more than I am able to guess; for it simply means that a vertical attitude was given to man, to distinguish him from the beasts of the field that had a horizontal one. In truth, the declaration of Solomon seems as little in accord with the theory as is the wisdom of Solomon.

The perversity of your contributor's theory is as if he were to insist that pottery was invented before cocoa-nut shells and gourd-husks; iron and bronze implements before those of stone and bone; or terms for the higher numerals before the lower—hundreds, thousands, and myriads before twos, fives, and tens; that is, that man had jumped to abstractions before he could distinguish between his right hand and left, or count his own fingers.

"We are not here, of course," says your contributor, "concerned with minor details respecting the various phases into which civilization may have been developed. I speak of the 'civilized man' only as an elevated, intelligent, and moral being, apart from his peculiar circumstances." The "minor details" and the "peculiar circumstances" which are here not to be taken into consideration are no other than the accumulated acquisitions of ages, or, in a word, civilization itself; and it follows that we have a civilized man without civilization, which is about the same thing as having a statue when we have only the block of marble out of which a statue may be made, more or less perfect according to the quality of the marble and the skill of the artist.

The following is a sample of the arguments which your contributor

brings forward in support of his truly eccentric paradox. "I am not aware," he observes, "of any civilization in the world which has not either always existed among the civilized race from time immemorial, or has had its origin attributed to the prior civilization of another race brought *ab extra* to the race becoming civilized. But I may add, that it can scarcely be said that we know of any people in an utterly savage condition who have been thus civilized by a higher race. . . . We know nothing of any truly 'savage' race having raised itself to a state of civilization; while it is questionable whether there is any thoroughly savage people that can be said to have become civilized through the influence of a superior race. But, even could such a case be adduced, it would not, of course, disprove the priority of civilization. The real point to be established by those who dispute my position is the proof that savage races can civilize, or have ever civilized, themselves." The arguments adduced in these extracts are of very easy refutation. There is, of course, no record of the earliest condition of any race of man, because no one existed to make a record of it. Before we can have records, we must have those who are capable of making an authentic written narrative of what has been observed. Authentic history does not go back beyond five-and-twenty centuries. The Greeks and Romans, who might have written an account of savages, knew of none. They knew many barbarians, but never saw a savage, such as we, with our larger experience, understand the word. The races inhabiting Europe that came under the notice of the Greeks and Romans were all of a high quality, and had all passed the savage state. Among the most backward known to the ancients were our own forefathers the Britons; but, in possession of herds and flocks, of iron and corn, they were very far advanced beyond the savage state. The other civilized races of the old world, such as the Egyptians, the Jews, the Assyrians, the Persians, the Hindus, and the Chinese, were probably in the same state of ignorance of the existence of savages such as were found in America and the Isles of the Pacific as the Greeks and Romans were. They had experience of many barbarians, as they have now, but of no savages.

Your contributor will have it that no savage people has ever attained civilization by itself, or by the help of those already civilized. This is surely contrary to well-known facts. The Mexicans and Peruvians had, when first seen by Europeans, attained a considerable measure of civilization, while the rest of the Americans were arrant savages. The inhabitants of the Society, the Friendly, and the Marquesas Islands, when first seen, were possessed of the dog and hog, cultivated farinaceous roots, the bread-fruit, the sugar-cane, the cocoa-nut, and the orange; while the rest of the islanders of the Pacific, for the most part, had none of these things,

and practised cannibalism, which the former did not. Had they invented iron, they would have been barbarians, and not savages.

But those who are now civilized must once have been barbarians, the barbarians must have been savages, and the lowest savages known to us, as in the example of the Australians, must have been once still lower—must have been once without language, fire, and implements. We can hardly be said to have any authentic account of arrant savages rising to the ranks of barbarians; but we are, notwithstanding, satisfied that, from the nature of things, such a progress must have taken place. We have, however, ample and satisfactory accounts of barbarians, who must have been once savages, rising to civilization. Some two thousand years ago we ourselves, whether Britons or Saxons, were rank unlettered barbarians; and we have now reached to a civilization to which that of Greece and Rome was child's-play. An English gunboat would soon destroy the fleet with which Cæsar invaded Britain, and a brigade of volunteers, with a battery of artillery, would quickly rout his invading army, the tenth legion included. An English steamboat would sail round the world in a shorter time than a Roman galley would circumnavigate Britain.

Even the torpid nations of Asia are by no means unprogressive. A modern Persian army, although not very formidable, is far more so than was that of Xerxes with its hundreds of thousands. The Indians who fought against Clive were far in advance of those who fought against Alexander, for they had received for seven centuries all the improvements which Asiatic strangers, somewhat better than themselves, although their conquerors, could convey. A hundred years have greatly improved the Indians of the time of Clive. Even the Chinese of the present day laugh at the folly of the great wall which their ancestors built two centuries before the birth of Christ to keep out the shepherds of Tartary.

What has probably misled your contributor into concluding that no race of savages can be civilized is probably the failure of all modern attempts. These attempts have been made under circumstances which made their failure inevitable. Two races of man, the one of the highest quality and in the highest state of civilization, and the other of a low quality and in the lowest state of society, are brought face to face. In such a state of things there can be little commixture, and no real amalgamation. The parties are in collision; the lowest must give way, and by one means or other comes to be ultimately exterminated. The examples of this result are abundant in America and its islands, and a rapid progress towards them is at this moment in due course in Australia and New Zealand.

Such are the results, however, only when the inferior race consists of mere savages. When it has acquired a certain measure of civilization the

superior race may deprive the inferior of all political powers, or even reduce them to the condition of serfs, but it does not exterminate them. The Hindus have been domineered by strangers for more than eight centuries, but they are now more numerous and more civilized than when they were their own masters. The Mexicans and Peruvians, after three centuries of domination, are probably at this day more numerous than under Montezuma and the Incas, and the majority more civilized. The inhabitants of the island of Java at present amount to 14,000,000, probably seven times their number when they were first seen by the Portuguese in the beginning of the 16th century; they are also more civilized. When the Spaniards first saw the inhabitants of the Philippines, they found them, some rude barbarians, and others arrant savages. They now number 6,000,000, with a few exceptions, decent Christians, and assuredly the foremost people of the Asiatic islands, although all the while ruled by European masters.

As "the civilized man" of your contributor turns out to be an arrant savage, it would seem indispensable to his theory that it should be shown that men once civilized by some process of degradation become savages. History, however, shows no example of such a decadence. Empires have fallen through their own vices and the inroads and conquests of barbarians, but no useful art once discovered has ever been lost. The Roman Empire was justly overthrown; but the agriculture of Italy was probably better in the dark ages than under the Republic or the Empire. Some arts were even invented in the dark ages, of which paper, printing, fire-arms, and the mariner's compass are examples. There are a few examples of civilization ending in barbarism, but not one of barbarians becoming savages.

After the exposition of it which I have now given, I am obliged to conclude that your contributor's theory is an idle attempt to turn the order of social progress bottom-upwards—nothing better than an effort to make the pyramid stand on its apex. As he evidently possesses both knowledge and ingenuity, I venture to suggest that he exercise them logically, henceforth forswearing paradox.

A. B.

MAN, SAVAGE AND CIVILIZED.

To the Editor of the ETHNOLOGICAL JOURNAL.

SIR,—Without at all proposing to enter the lists with your correspondent J. R. on the general issues raised by him in your last Number, I should like to make a few remarks on his article, which, as you say, is "a bold

and honourable challenge ;" indeed, a very bold one ; for the odds, it seems to me, are fearfully against him.

Granting that man when he came from the Creator's hands must have been perfect in his kind as well as all other animals, still the word *perfect* may have different acceptations : it may mean the very highest degree of completeness to which a given type of structure can possibly reach ; or it may simply mean a structure, whether high or low, which is exactly suited to the circumstances in which it is placed by nature. Science knows a great deal about structures of this latter kind, but I am not aware that it knows anything about structures perfect in the former sense. With structures of this kind, organic progress is irrevocably barred : the only alternatives are to remain stationary or retrograde. A man thus perfect would, of course, advance in knowledge, and in all those social advantages dependent on it, but he could not advance in capacity, in intrinsic refinement, or in elevation of character. In this view, all types would be organically unprogressive, and there would be no growth except in the individual. In this case all gradations in superiority would imply distinct and primary creations, or be steps backward in degradation. Will your correspondent go as far as this ? I can hardly believe it, and therefore, until he does, there is no need of wasting time in refuting the position.

If this be not his meaning, then a man perfect in his kind is simply a being healthily and normally formed, in mind and body, and fully in relation with external nature ; and I do not see why such a being may not be an American Indian, a New Zealander, or a Bosjesman, as well as the most favoured European. It is simply a question of different orders of mind and body, just as it is with all other animals.

As your correspondent very properly puts the question on its scientific merits only, all miraculous workings and gifts are necessarily excluded from the argument ; for science can only recognise that which is scientifically demonstrable, either as fact or as deduction from known laws. Scientifically considered, then, primitive man must be viewed as naked, speechless, defenceless, and ignorant ; and, if possessed of the highest order of mind, of the loftiest aspirations, the most refined tastes, and the most delicate susceptibilities, as must have been the case if he has not progressed, he would have been out of all harmony with his external condition, chained down to a painful, monotonous physical drudgery, against which his whole nature would have rebelled. He could not have found means of subsistence in the very climates best suited to minds and constitutions like his, and would therefore have had to languish, and finally die away, amid tropical uncongenialities.

Your correspondent appeals to history to support the assumption that

civilization is older than savagery; but history can know nothing of the remote times of man, unless by Divine revelation, and to bring in this is to remove the question out of the domain of scientific discussion. Before there can be history, in the natural course of things, there must be ages of civilization; and before there can be civilization, in the historic sense, there must be ages of struggle against ignorance and its concomitants. Besides, history takes us back at the farthest but some five or six thousand years, and then shows us Europe and Asia in their actual geographical and zoological condition; while geology finds man existing in vastly remoter times, and in widely different conditions, geographical, zoological, and social.

Your correspondent is not sufficiently definite as regards his theory of degradation. Social degradation is easily intelligible, and may happen to any people. Physical degradation implies structural change, and must either be viewed as abnormal and unhealthy, or as sufficiently regular and correlated to be consistent with perfect health and vitality. If the former, it tends to destruction with a rapidity proportionate to its amount; if the latter, it is a sort of downward growth brought about by, and in harmony with, external influences. It is, in fact, Darwinism read backwards. Now your correspondent dissents from Darwinism read forwards, and I beg to dissent from Darwinism read backwards; so the argument rests *in equilibrio* between us. How, under these circumstances, we are to get humanity to move at all, I must leave your correspondent to settle.

F. E. S.

To the Editor of the ETHNOLOGICAL JOURNAL.

SIR,—I beg leave to offer the following as a reply to some portions (and in effect to the whole) of the article headed "Phrenology—What is it?" in your Number of last August. To some it may appear that the admission of "Ethnicus's" contribution argues something like hostility to Phrenology on your part, particularly as you declined to insert certain replies sent to you. I interpret the fact differently, and think that the insertion of *such an attack* on the science is the greatest service you can do to it. Long may such opponents to Phrenology live and write. They have been frequently in print, and I have no doubt that their cerebral organization is such as to make them hostile to the doctrine that size and form of brain are measures of mental power, though not the sole measures.

Phrenology is the science which explains—

- 1st. The functions of the human brain, and the connections between this organ and the mental faculties.
- 2ndly. The laws of size and form in particular which govern the brain as a whole, as well as each of its various parts or organs.
- 3rdly. Viewing Phrenology as an art, it is that which enables a duly-qualified observer to form an estimate of the leading mental characteristics of individuals from the size and form of their heads (brains), with certain qualifications, such as "temperament," health, &c.

According to these principles, each of the fundamental powers (faculties) of the mind, of whatever class, performs its functions by means of its proper organ ; and it is the congeries or assemblage of these organs that composes the brain, the sole organ of each and all of the mental faculties.

This doctrine has been adopted and illustrated, in their published works, by a *great number of eminent medical men of various European countries, and by the great majority of American anatomists and physiologists.*

Among those of our own kingdom may be named the following : John Abernethy, F.R.C.S., Lecturer at the College of Surgeons ; William Lawrence, F.R.C.S., "*Lectures on Man* ;" Daniel Noble, F.R.C.S., "*The Brain and its Physiology* ;" John Elliotson, M.D., "*Human Physiology* ;" Samuel Solly, M.D., F.R.C.S., "*The Human Brain* ;" Sir John Forbes, M.D., "*True and False Phrenology* ;" Andrew Combe, M.D., "*Principles of Phrenology*," and various writings ; William Gregory, M.D., various writings ; John Conolly, M.D., various writings ; John Laycock, M.D., "*Mind and Brain* ;" Drs. Todd and Bowman, in their "*Physiology*," and also in the "*Cyclopædia of Anatomy and Physiology*."

This list might be greatly extended. In the Phrenological Association there were one hundred medical members, each of whom had, as a condition of membership, to declare his belief in the soundness of the Phrenological principles.

And yet your contributor "*Ethnicus*" positively asserts in his first paragraph that, with the exception of Drs. Gall and Spurzheim, the originators of this science, "no anatomist or physiologist of mark has embraced it" (Phrenology) ; but, "on the contrary, they have one and all openly denounced it as a delusion." Did "*Ethnicus*" make this statement in ignorance of the above-mentioned leading physiological works of this century ?

Of course he did ; and, being thus ignorant, of what value are his statements or opinions on Phrenology or any physiological question ? That

he has grossly misstated and distorted the doctrines of Phrenology (in ignorance, of course), must be obvious to the veriest tyro in the science. Here I leave him.

Your obedient Servant,

C. DONOVAN.

School of Phrenology, 111, Strand, October 1865.

THE BRITISH ASSOCIATION.

ETHNOLOGICAL PROCEEDINGS.

WE find that some of the papers not noticed in our last report will be read before the Ethnological Society during the coming session, and it will be more convenient to defer till then our remarks and extracts. Had time permitted, we should have here given some account of Mr. Dunn's interesting paper, "On the Influence of Civilization on the Cerebral Development of the different Races of Men," accompanying them with some remarks of our own on one or two of the important issues discussed by him. We hope, however, to be able to do so in our next. On the present occasion we are glad to avail ourselves of the permission to make some extracts from a very interesting paper by Miss Irby, read in "Section D"—

ON THE CHARACTERISTICS OF THE SOUTH SLAVONIC RACE, ESPECIALLY THOSE DISTINGUISHING IT FROM ITS NEIGHBOURS THE GREEKS AND GERMANS. BY MISS IRBY.

These "notes," the result of personal observations in various portions of Austria, Greece, and Turkey in Europe, during the years 1862, 1863, and 1864, are here offered simply as suggestions calculated to provoke discussion and competent inquiry into the condition and character of races "less known to us than Dyaks or New Zealanders, though dwelling within a few days' distance from our shores."

On the first view of the social and political condition of the South Slavonic people, one might be disposed, observes Miss Irby, to infer some inherent weakness in the race which has been unable to maintain a place among the free and independent nations of Europe, or to offer any special gifts to bear in the cause of civilization. In like manner might one infer that the lands are barren which are at present of so small importance in trade or commerce. But as with the land, so with the men :

they have, by geographical position, been exposed to bear the brunt of the invasion of Turkish hordes and armies, and the greater portion yet lie in the gripe of the Ottoman.

It is not within the province of this paper to enter upon the condition of Christian rayas under Turkish rule, or to illustrate by other instances the truth of the proverb that "where the Ottoman plants his foot not a blade of grass will grow;" but, in order to estimate the position and capabilities of the South Slavonic races, it is necessary to realize the fact of a Turkish occupation of nearly five centuries to know what that occupation brings in its train, and to bear in mind the geographical position which has laid these races open to the enemy and has stood in the way of their deliverance.

But better times are at hand. The waves of the Turkish deluge are receding slowly but surely, while the Slavonic races are commensurably rising in self-consciousness and national life. The Turk has not extinguished them, neither has Magyar nor German been able to absorb them: they amalgamate with the Greek as little as oil does with water. The Albanian has indeed encroached on the land from which Turkish tyranny has driven them to emigrate, but Albanian and Serb, even when they dwell side by side, remain distinct as ever.

In reference to the question of the position which the Slav may take relative to his most numerous, powerful, and progressive neighbours, the German on the north, and the Greek on the south, Miss Irby passes in review some of the leading events and personages, past and present, of the different Slavonic nationalities, including Poles and Russians, and then proceeds to a comparison of the Bulgarian Slav with the Greek race, with which he is brought into more immediate contact.

The Greek is ambitious and irascible; the Bulgarian only tenacious of his own, and not easily roused to anger. In quickness, acuteness, and subtlety of intellect, the Greek is his superior; while the Bulgarian is strong in common sense, steadiness, and perseverance. Unlike the Greek, he is utterly devoid of brag, vanity, or pretentiousness of any kind.

The Bulgarian is more industrious and painstaking than any of his neighbours, and especially addicted to the cultivation of the soil. Even in Serbia Bulgarians carry on a great part of such agriculture as there is. The superior cleanliness and neatness of their houses is one of the characteristics which first strike the eye of the traveller from Greece. They are fond of flowers, and cultivate their little gardens carefully. A Bulgarian maiden, to complete her holiday garb, always places a flower behind her ear, and generally twines flowers in the long plait of hair which hangs down her back.

A striking distinctive difference in the character of the Greek and Slav is the honest simplicity of the latter. Truthfulness the Greek rarely possesses as an instinct of his nature, though education and habit may teach him the practice of truth. He is sharp enough to know that honesty is the best policy, and clever enough to practise honesty when the standard of society requires it. This is shown by the high standing and fair repute acquired by Greek merchants in England; but the habitual unverity of Greeks in their own land lies at the root of the dislike often felt towards them by English in the East. With Serbs or Bulgarians Englishmen have unfortunately little intercourse. Those who have had any perceive in them a truth and sincerity of nature which wins respect and confidence. No doubt the position of the Bulgarians, as *rayas* living under a despotism of force, and surrounded by enemies, has taught them the practice of extreme caution, concealment, and dissimulation as the means of self-preservation; but this dissimulation has always some distinct aim; it is not natural to them: their first impulse is not negation, still less fabrication. Niebuhr found a witness of this truthfulness in the language of the Serbs, when he called it the honestest language in Europe. An English lady, who was employed in a school of Greek girls in Athens, told us that one of the boarders, who was of Montenegrin origin, differed from all Greek girls she had ever known in the honesty and truthfulness of her nature.

The Bulgarian is slow and cautious, but persevering in the attainment of his end: while his national hatred of the Turkish rule is as strong as that of any other race under its dominion, it is less openly expressed. He is by no means deficient in courage when there is a fair chance of success, but he does not love fighting for its own sake.

Greek and Bulgarian are alike in the value they set on education, and in their patriotic efforts and sacrifices to promote it; but the attempt of the Greeks to force a Hellenic education on the Bulgarians, by means of the Greek priests, has met with a determined resistance. The Greeks, therefore, stigmatize the Bulgarians as barbarians and 'wooden heads,' because they prefer to educate their children in their own language rather than in the Greek; an arrogance not wholly unpardonable in the heirs of Grecian literature. Again, as regards purity of morals and sanctity of domestic ties, those who are best acquainted with the Southern Slavs give unquestionable testimony in their favour. A lady who had been long and intimately acquainted with many Greek and Bulgarian families told us that among the latter she never heard tales of domestic intrigue and scandal, whereas in Greek families these formed the staple of conversation to a degree intolerable to English, and even to Levantine ears. In comparing Greek with Bulgarian national songs, one is struck with the

superior moral aroma of the latter ; while, on the other hand, they are less graceful, less artistic, less imaginative. The Bulgarian type of forehead is higher and narrower than the Greek, or, again, than that of their own Slavonic neighbours the Croato-Serbs. The head is long, the cheek-bones prominently developed, the eyes deep-set and small. The gait is awkward and heavy, and in striking contrast with the lively, self-satisfied strut of the Greek. The Bulgarian women have neither the coquetry nor the grace of the Greek ; but they have large frames, fresh complexions, and are singularly modest and pleasing, with the charm of honest, guileless eyes.

The Slav, especially the Croato-Slav, as in more especial contact with the Germanic race, is thus contrasted with the German :—

The Southern Slav, checked in self-development by foreign and barbarous rule, is lamentably behind the German in all the arts and appliances of civilization. He is too ignorant to value them, and too poor to acquire them. His political position, whether under Turkey or Austria, is a check to enterprise. In short, the Southern Slav must be considered as an undeveloped race, as the raw material of South-eastern Europe.

A traveller entering these countries from Austria misses numberless comforts and conveniences ; but if their absence has not too much tried his temper, he will be struck with a superior refinement of manner and delicacy of feeling peculiar to the Slavonic race. It has been said with truth that “ every Serb is a gentleman.” Now the like could never have been said of German peasants or the lower class of German tradespeople, scarcely even of the German middle class.

In that higher civilization, which regards social conduct and the relation of man to man, the Serb has attained a high degree. He possesses the native kindliness, refinement, and self-respect, which is the spirit of courtesy. There are many individuals in Belgrade who have begun life as poor uneducated men, but whose manners and deportment would not distinguish them from members of the highest society in any European city.

In his intellectual nature, the Slav lacks the rich subjective element of the Teuton. His mind is eminently objective. The subtleties of metaphysics have little attraction even for the cultivated. In this respect the tendency of the Slavonic intellect is very distinct from that of the German. At present the peculiar gift of the Serb is lyric and ballad song, the latter often rising to the dignity of the epic. As compared with the German, the national poems of the Slavs are picturesque and spirited, but they lack the burly strength and material coarseness of the latter. The people have a good ear for music, and the land is rich in national melodies.

In physical development, in strength, size, and beauty, the Serb and

the Montenegrin Highlander will be acknowledged to surpass the average of any German race. As a rule, the brow of the Serb is remarkably broad, and the eyes deep-set.

Miss Irby hopes that the future will call forth a Slavonic as well as a German civilization in Europe; for, as she justly remarks, on the development of ethnic, as of personal individuality, depends the richness and variety of human society.

We find in the Serb of the present day, and in the Slavonic race as we know it in history, a distinctness and originality of character which, in circumstances favourable to education and development, will yield an entity among the nations necessary to the completion of the designs of the Creator. Those which with some reason are called the animal qualities of our nature are less prominent in the Slav than in the Roman and Teuton races. The Slav is not predatory, aggressive, or passionate. He has a keen sense of justice, tenderness of affection, and simplicity of character. In the age of brute force he will not make his way; but the age of civilization and moral force, into which we are perhaps entering, will be favourable to the development of his national individuality.

We are sorry to be obliged to close our extracts from a paper which presents throughout so interesting and pleasant, and, we doubt not also, so judicious and faithful a picture of a people so little known, and yet so distinctly individual.

ETHNOLOGICAL SOCIETY.

THE first meeting of the season will take place on Tuesday, November the 7th, at eight o'clock precisely, when the following papers will be read:—

1st. Report on the Ethnological Papers read at the meeting of the British Association in Birmingham.

2nd. Notes on the Manners and Customs of the People about Little Popo, on the Bight of Benin, by Captain L. Wildman, R.N.

3rd. On the Darien Indians, by Dr. Cullen.

THE ETHNOLOGICAL JOURNAL.

KILLING TWO BIRDS WITH ONE STONE.

To kill two birds with one stone is generally considered a notable feat of sportsmanship; but our Anthropological brethren have gone far beyond this mark, for they have killed their birds without throwing the stone at

all—killed them by the mere act of withholding it. This, it must be confessed, is the *ne plus ultra* of skill and success.

Our little work—this *Ethnological Journal* of ours—as everybody knows, is “an obscure periodical.” Periodicals are very apt to be provokingly obscure in their early days, unless, indeed, they happen to be born with the silver spoon instead of the wooden ladle. Then, indeed, they may come forth with sound of trumpet, and in the eager expectancy of the nations, even when the ultimate result is but the *ridiculus mus*. Otherwise, they are singularly apt to be obscure. Nay, there have been cases in which journals of very considerable size and pretensions have been very, very obscure, even after three times three months of existence, and although backed up by all the organized resources of a learned society. It is, in fact, a way they have.

But it so happens that our little work is not only an obscure periodical, but withal a troublesome and impertinent one; for it has gone so far as to venture to criticise some of the sayings and doings of the personages represented by its imposing contemporary the *Anthropological Review*. Well, that seems a simple affair: nothing would appear to be needed but to check this juvenile frowardness by a proper and dignified rebuke. This, however, is a narrow and superficial view of things. It is well known that children often utter very awkward truths, and are apt to ask questions which it is difficult, often impossible, to answer. To scold them in the presence of company, therefore, would be highly injudicious: it would but fix additional attention on what they had said, and perhaps lead them to say more. It is obvious that the proper course in such a case is to send them off at once to the obscurity of the nursery.

Now this is just what has been done with us. The *Anthropological Journal* has come forth, and, lo, we are nowhere to be found in its pages! Not a word even about the great controversy; not a word as to whether the egg is henceforth to be broken at the “big end” or the “little end”! It is true we are *alluded* to once: a correspondent has been allowed to overhaul us for a special delinquency; but we are alluded to under the name of “a contemporary,” but who on earth would find out an obscure journal under such a name as that? The exception, therefore, is clearly the celebrated one which proves the rule. Thus dignity has been duly maintained, the necessity of answering troublesome questions avoided, while questions and questioners have alike been left in merited obscurity. This is killing many birds with one masterly stroke of policy. It is wonderful how much a little prudence may do on an emergency: it is more wonderful still that some people do not oftener begin with it as well as ending.

We certainly had not anticipated such a result as this, obviously prudent as it nevertheless is. We had calculated on a dreadful whipping; but, at the same time, we had hoped to be immortalized by the touch of our great rival, as Hindu delinquents receive eternal beatitude if they happen to be slain by the hand of Vishnu. But, alas! no; we are simply sent to Coventry, packed off to the silence and obscurity of the nursery, treated with sublime contempt, utterly ignored!

Now it may be all very well for gems "of purest ray serene" to be content with illuminating the dark unfathomed caves of ocean, but it is perfectly plain that "the silent system" is not at all suited to the health of a periodical; and, though we are sorry to be the *enfant terrible* of the Anthropological household, we really cannot answer for ourselves while condemned to so severe a punishment as this.

It is, however, an ill wind that blows nobody good: though we suffer, others may rejoice. In this sense we are happy to be able to announce that the battle of the *ologies* has at last been fought out, and that the great case of *Anthropo versus Ethno* has come to a close. The plaintiffs have allowed judgment to go by default, and they are accordingly nonsuited, and condemned to pay costs. Henceforth, then, it is ruled that Anthropology and Ethnology are but different names for one and the same science; and though the former at one time meant the science of *Anatomy*, and though in Germany it has long been a designation for a branch of *Psychology*, yet, these things notwithstanding, it is now ruled that, in her Majesty's dominions, and in the English language, it shall henceforth mean "the science of man," "the science of the whole nature of man," the science of "the natural history of man," "the science of the races of man;" in a word, *the science of Ethnology!*

Thus, after a period of invasion and discord extending over two years and eight months, there is once more peace in this important section of the organic world. The British Association may look out for stormy weather; but Ethnology, at least, is safe. And to think that this auspicious result has been brought about by the efforts of "an obscure periodical" not three months old! If this be infancy and obscurity, we should like to know what maturity and notoriety will be! People talk of the infant Hercules; but we beg to state that that story is a myth, while this one is a reality—one of which Jack the Giant-killer himself might well be proud.

Again, it is an ill wind which blows nobody good. We are ignored by the *Anthropological Review*, and therefore condemned to obscurity; but therefore, also, we are secure from all attacks from this important quarter, whatever the pranks we may play. We may quiz, tease, pinch even; we may write foolish articles, misstate facts, blunder in argument, even sac-

rifice the interests of "truth and science," and all with perfect impunity; while let our contemporary trip in any point, and we can be down upon him in a moment and revel in dissection. Giant as he is, he lies wholly at our mercy.

Well, "the Prophet be praised!" as they say in the East, once more it is an ill wind that blows nobody good. Even the killing of two birds with one stone may have its inconveniences; for in this world of ours there seems to be no such thing as unmixed evil or unmixed good. "The darkest cloud has a silver lining;" the brightest, deep shadow behind.

And, after all, giants do not appear to be such great affairs as some people seem to think. We have the high authority of *The Reader* for believing that "the *homo giganteus*" of past times "was not very gifted in mind." "Probably he was a creature full of stupid wonderment at the phenomena of nature, voracious," and "very easily duped." Whether the existing representatives of the family have improved or deteriorated is a point which we must leave the naturalists to settle. Perhaps the question might be advantageously considered in "Section D."

ITINERANT ANTHROPOLOGY.

In the advertising sheet of the last number of the *Anthropological Review* there appears an announcement of a project which to many, doubtless, will seem very natural and very useful, but which, assuredly, will be regarded by others as wholly chimerical and mischievous.

Under the head of "Anthropological Lecturing Club," we learn that "several gentlemen, interested in the progress of the science of man, and wishing to unite in removing the popular delusions which exist respecting the objects and aim of Anthropological science, have determined to offer their services to the various public institutions throughout the country."

"A syllabus," we are further informed, "is in course of preparation, giving full particulars;" and in the meantime Secretaries of Mechanics' Institutions, &c., and gentlemen willing to take part in the undertaking, are invited to seek further information from the Secretary of the Club at 4, St. Martin's Place, W.C.

No names are given; we know not who is the president or chairman, or who are the committee, or even who is the secretary who issues the notice; but as the advertisement appears in the recognised organ of the Anthropological Society, and is further alluded to in the text of the *Review*, those to whom it is addressed must necessarily consider it as a project distinctly sanctioned and recommended by the authorities of the Society, if

not, indeed, placed under their direct management ; and the public will view the matter in the same light.

Now the idea of removing prejudices, and of popularizing an important science, is not only innocent, but meritorious also. But this admission implies that we *have* a science, and that it is sufficiently advanced to be conveniently and advantageously presented to general audiences ; that, in fact, in proposing to teach we are offering a reality, and not merely filling up the vacuity of conscious ignorance with the inanity of illusion.

In the case of such sciences as geology, astronomy, chemistry, natural history, botany, &c., &c., no one will dispute the advantage of disseminating a knowledge of them by popular lectures : we know that, even in the hands of the most ordinary lecturers, the recognised facts and laws of the science will be placed before the audience ; or that, should ignorance or incompetence be displayed, there are abundant means at hand of detection and remedy.

But Anthropology is at all points an unformed science. No two independent investigators are agreed upon its principles, or to any considerable extent even upon its facts. Half a psychological, half a physical science, embracing questions of the deepest and of the most delicate nature ; meeting at all points prejudices and prepossessions of long standing and of great force, and which, therefore, colour everything with special hues ; and burdened, in addition, with the accumulated assumptions, crudities, and false knowledge of centuries of ignorance,—this science, as far as concerns agreement among its cultivators, is for the present, at all events, whatever it may be hereafter, a mere chaos, a howling wilderness, at the mercy of every wind of doctrine which prejudice or passion, or interest or presumptuous ignorance, or well-meaning stupidity, may let loose upon it. And it is on this subject that popular lecturers are invited to exercise their eloquence and display their learning during the coming season ! Where this learning is to come from, or how these gentlemen are to read up for the occasion on a science without a manual, or anything to supply its place, we are at a loss to conceive. They cannot confront whole literatures of controversial writings for the sake of delivering a few lectures ; how, then, they are to manage, without making fools of themselves or of their audiences, is more than we can pretend to understand. Doubtless they can give the opinion of this writer or that writer, and call it Anthropology ; but we hardly think this the best mode of ensuring the popular mind against “delusions.”

But what are these “popular delusions” “respecting the objects and aim of Anthropological science” which are of such gravity and urgency as to demand the formation of an “Anthropological Lecturing Club” ? We

confess our profound ignorance, unless indeed the words "Anthropological science" be a misprint or a synonym for Anthropological Society. We know, however, a great many *learned delusions* on the subject, which we should be delighted to see removed, and which we regard as very urgent and very grave too; but, unfortunately, we see no royal road to the accomplishment of such a wish.

Viewed, then, on simply scientific grounds, we cannot but consider this lecturing project as ill-judged and mischievous, and eminently calculated to increase, instead of removing illusions, by giving a species of corporate sanction to teachings which, at the best, can be but matters of individual opinion, and which are more likely to propagate egregious errors than sound truths; and we are greatly deceived if any leading scientific men—any scientific men, indeed, in whose judgment and knowledge of the subject the public have a right to feel confidence—will lend themselves to the carrying out of so crude a project; a project, too, put before the world in this muddled and half-hidden fashion, without a single name to bear its responsibility.

We should like to know what would be said of a Cosmological Lecturing Club, under the auspices of the Royal Society; or of a Biological Lecturing Club, commissioned by the Linnean Society. Let the reader imagine such bodies inviting mechanics' institutions and gentlemen-lecturers to send in their tenders for scouring the country for the removal of popular delusions, and the inculcation of sound doctrines on the structure of the universe, or the laws and origin of life! But these projects would be simple and rational when compared with the one before us; for in both these great sciences we have a vast body of thoroughly-established and well-arranged facts, together with demonstrated and systematized laws, which leave a large portion of each subject in light and order; so that a lecturer might very well manage to dispel a multitude of illusions, and yet keep clear of the rocks, and shoals, and difficulties of his topic. But we cannot shirk the rocks, and shoals, and difficulties of the Science of Man. They meet us everywhere. To omit disputed points in this case is to leave nothing to be said.

There is, however, a sense in which this project is intelligible. These lectures may popularize the word Anthropology, fix attention on the Anthropological Society, swell the number of its members, and promote the circulation of its publications. They may bring before the country the grievances of the Society, the ill-treatment of Anthropology by the British Association, and the miserable condition of Ethnology in "Section E;" and they may induce provincial "Philosophical and Natural History Societies" to send to the next meeting of the Association delegates likely to support the

claims of the Anthropological Society, and thus perhaps give it a majority of votes in the General Committee, enable it to rescind the objectionable law passed at the last meeting, and thus finally obtain a section, or sub-section, or quarter section—any division whatever, so it be named Anthropology.

For any or all of these purposes the present project may be well suited; but, if anything like this be its aim, the fact ought to have been candidly put forward. If we are to have the usages of party politics introduced into science, let there at least be a proper understanding on the matter, and let the ostensible be also the real aim.

In any case, we hold this project to be ill-judged and mischievous. The progress of genuine knowledge and the interests of the public are matters of far higher importance than any settlement that can be made of the points in dispute between the Anthropological Society and the British Association; and we regret to see so much energy and zeal expended on a policy which may command a temporary success, but which must sooner or later entail a painful reaction.

GAMMON AND SPINACH.

In the advertising sheet of the *Anthropological Review* we are further presented with the prospectus of "a new scientific periodical," under the extraordinary title of *Gammon and Spinach*. The comic element, we are informed, has hitherto been rigorously excluded from the periodical literature of science; while yet "the slight boundary said to exist between the sublime and the ridiculous is as often overstepped by the *savant* as by the politician, lawyer, or any other class of society." This work, therefore, proposes "to hold the mirror up to Nature" "in the most literal sense," and thereby "to startle some who may behold their image reflected therein under an aspect hitherto unknown to themselves." We are further informed that "a full report of the meetings of the scientific societies and reviews of scientific books will be given."

Gammon and Spinach! an elegant title, certainly, for a scientific journal, but probably quite suitable and characteristic. We are only surprised that the "Rolly Polly" immemorably associated with it has not also been retained as, at least, a sub-title. The first *Gammon and Spinach* on record brought all connected with it to grief; and we can hardly doubt that Nemesis will equally pursue the present most recklessly short-sighted and ill-considered undertaking.

Where the wit and humour which are to uphold the character of the work, from month to month and year to year, are to come from, we cannot

conceive; nor where the critics are to come from who are both competent and willing to sit in judgment on the labours of their brethren, and make merry with their errors in a work of professed buffoonery. No doubt there is folly enough in the world in all directions, but we are not aware that wit and humour are equally abundant or that a sufficient supply of them may be looked for in the very quarters where they are least in character. With the entire range of society to draw upon, *Punch* has stood for years without a single competitor of its own rank, and, though supported by professed wits and humorists, is not always able to come up to the mark.

But the present work is clearly not to be one in which, under a veil of pleasant and harmless humour, important truths are to be enforced or scientific follies smiled away. Even in its prospectus it holds out a threat which shows that its aim is not simply to laugh at follies as they may arise, but that it has already marked out specific individuals who are to be presented in an aspect little expected by themselves. Language of this kind clearly bodes a scientific *Satirist*, not a scientific *Punch*; and a scientific *Satirist* will not be long in purchasing its experience.

To suppose that men really entitled to criticise will lend themselves to a project like this is utterly ridiculous. It is one thing to indulge in incidental playfulness; there may, too, be occasions in which even caustic wit becomes appropriate; but all this is something widely different from entering an arena of habitual buffoonery, an arena in which the very brightest names in science may constantly be at the mercy of juvenile impertinence and incompetence.

Public rumour points to this work as another of the strange projects set on foot by leading members of the Anthropological Society, and meant to forward the objects of the Society; but surely no scientific body in this country would stoop so low as to give any countenance, direct or indirect, to a project of this kind. If, with a long list of members, with a *Quarterly Review*, a *Quarterly Journal of Proceedings*, and the other facilities offered by its various publications—if, with all these resources, the Anthropological Society cannot maintain its position without the aid of a work in which its opponents may be anonymously lashed from month to month without itself incurring responsibility, then we say that the Anthropological Society must be a poor thing indeed, with all its pretensions. We trust its officers will be able indignantly to repudiate the charge which rumour has, in this case, brought against the Society, and we are much surprised that this has not been done already.

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THE ETHNOLOGICAL JOURNAL:

A MONTHLY RECORD OF

Ethnological Research and Criticism.

THE high interest which the Science of Man has of late assumed, the many important questions involved in it, and the constantly increasing number of its students and cultivators, demand more facilities for the communication of facts and the discussion of opinions than our existing periodical literature affords; and it is in view of this demand that the present work is offered to the notice of the Public.

THE ETHNOLOGICAL JOURNAL will be conducted on the broadest and most liberal basis—not seeking to reflect any particular class of opinions, but open to all communications of merit directly bearing on its subject. Embracing in its sphere the entire Science of Man, in the most comprehensive import of the term, no department of research will be deemed foreign to its scope which tends to throw light on the nature, origin, or history of humanity, on its place in the scale of being, or its relations to the inferior forms of life. In fact, all the great questions of the science will be fully and carefully discussed, and always, we trust, with the combined independence and moderation which should ever characterize the pursuit of truth.

Criticism will, of course, constitute an important feature in such a work. The various theories of leading writers will be carefully and candidly examined; and, as far as may be practicable, all new publications of importance will be briefly noticed or formally reviewed. Neither will it be content with simply collecting materials and discussing opinions: it will also keep prominently in view the higher aims of every true science—the organisation of facts, and the evolution and application of principles; for these alone can give meaning to phenomena, or utility to knowledge.

Among other details of current intelligence, THE ETHNOLOGICAL JOURNAL will regularly publish the Official Reports of the Proceedings and Discussions of the Ethnological Society of London; and we may add that the promises of literary co-operation already received from distinguished writers leave us no room for doubting that this work will ere long be entitled to claim a high and useful place in the literature of our science.

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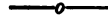
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THE
ETHNOLOGICAL JOURNAL.

DECEMBER, 1865.

THE PLACE OF MAN IN THE ANIMATE SCALE.

(Continued from page 117.)

DETAILED EVIDENCES OF THE "INITIAL" CHARACTER OF MAN
AS A CLASS AND KINGDOM.

§ VII. THE DERMAL OR PROTECTIVE SYSTEM.

A LARGE portion of the arrangements of zoologists are obviously natural, so natural, indeed, that in many cases they but repeat, under scientific names, the almost instinctive groupings of ordinary observation; while, in others, they have simply corrected them in special points, while fully confirming their general accuracy. In some cases, however, they have aggregated under some common term groups which popular language generally views as quite distinct; and in one signal instance—the case of man—they have made a seriously retrograde movement; for, without any new evidence, they have reversed one of the most emphatic of the popular decisions, and thus placed science in the broadest antagonism with the common-sense of mankind. However, with this single exception, the errors of zoology do not concern our present purpose; there is enough of accuracy on all sides for the comparisons which we now propose to draw.

A very cursory review of the distinctive characteristics of the great groups of the animal kingdom will be sufficient to show that each is clearly distinguishable from all others by numerous and marked specialities, not only in essential, but even in trivial attributes. If we carefully pass some of these in review, we shall soon perceive how widely nature has separated man from the group with which an imperfect science has long confounded him.

Every division of the animal kingdom, amounting to the rank of a true
VOL. I.

class, has some distinctive protection from the contact of external bodies, and especially from the variations of temperature, to which all living things are subjected. The skin—the external integument of the body—is the common protective of all animate life; but this skin is specially modified and supplemented according to requirement; and these modifications and supplementings are special for each class. Thus, for the beast, the skin is covered with hair, or becomes specially thickened when the temperature but slightly varies, and hair would be an inconvenience; or, as in the case of the whale, there is a great accumulation of sub-cutaneous fat, which serves to preserve the heat of the body, while in some timid and slow-moving animals, such as the porcupine and the armadillo, there is a protective covering of sharp spines or dense cuticular plates. The bird is subjected to greater and more sudden variations of temperature than the beast. From the hot ground it rises at once high into the air, and may even pass, in the course of a few minutes, from the blaze of summer into the snows of winter, as constantly happens to the condor, for instance. But feathers protect alike from heat and cold, while they facilitate progression by their admirable disposition, and by the buoyancy which they give to the aggregate mass of the body.

The reptile, less sensitive to atmospheric changes, is covered with horny scales or plates. Cold-blooded and blunted in its sensations, changes of temperature cannot give it those feelings of acute pain or vivid pleasure which they are calculated to produce in more highly organised creatures; and the main point in its case is to protect it from the injuries which contact with solid bodies might produce. In the case of the most sluggish of the class, the *Chelonia*, or tortoises, this is effected by a peculiar modification of the osseous system, as well as by a covering of those horny plates known as tortoise-shell. The more active reptiles, who can escape, by running or concealment, a thousand dangers that would be fatal to more slowly-moving creatures, have a covering of small scales, or even, in the case of the *Amphibia*, a naked skin, as the insensibility of the group on the one hand, joined to the character of the habitat, and a considerable amount of activity, supply the necessary protection.

The fish, though more active than the reptile, is also cold-blooded, and exists, moreover, in a medium of more equable temperature than the atmosphere, and in which there are few liabilities to injury beyond those created by the war which some groups of the class ceaselessly wage against others. This latter danger can only be avoided in the water by strength or fleetness, and therefore the external covering is usually slight, consisting of fine scales, while the movements are usually very rapid. Occasionally there is both large size, great strength, and a much more solid covering, as in the

case of the sharks and rays, while, in the extinct ganoids of remote geological epochs, the external covering was not only formed of horny plates, but these sometimes assumed the hardness and consistency of enamel; and there doubtless were adequate reasons for these contrasts to existing arrangements, however little they may now be apparent.

In the invertebrate sub-kingdom these special adaptations are seen to be very broadly marked when we look at the greater divisions or branches; they become less prominent in the classes, owing to the smaller size or the lower order of life which the descending scale of being exhibits; but even here we have very striking contrasts and specialities. Thus, among the articulate animals, the wonderful group of the *Insecta* presents a great variety of minor adaptations, while the entire tegumentary system is immensely intensified in the slow-moving *Crustacea*. In the branch *Mollusca* we are introduced to an integument of an entirely new order, but admirably suited to the blunter sensations, sluggish movements, or wholly stationary life of the greater part of these animals; and this integument, or rather this external coating of the general integument, varies strikingly in the four classes into which the group is divisible—the *Cephalopoda*, *Gasteropoda*, *Conchifera*, and *Tunicata*.

The great division of the *Radiata* is too vast, and varied, and lowly to be at all dwelt on in so brief a review as the present. Enough has been said to illustrate the fact that each classic division of the animal kingdom has a tegumentary envelopment quite peculiar to itself in its details, though all are fundamentally identical in their ulterior purpose and in their essential character. In the lowest classes the structure is relatively simple, it increases in complexity as we ascend, and its several parts become more and more distinct and specialized according to the universal law of organic progress. Everywhere, too, we see that the speciality belonging to each class is intensified or diminished in its different groups, according to their peculiar requirements. Hair nearly vanishes in some of the *Pachydermata*, as in the case of the existing elephant, rhinoceros, and hippopotamus, while it quite vanishes in the *Cetacea*; but the general character of the mammalian skin remains. We must not, then, expect that the most prominent external characteristic of a group is to be met with in every individual member of that group, but rather that it shall present an elasticity of modification suitable to varying circumstances. But we may expect that this elasticity shall not be discordant, that it shall not offer reasons for cutting off from the group those members which are deficient in the required speciality. We may expect that those members shall manifest unequivocally the other common properties of the group, and even intensify some of them, as a compensation for the missing peculiarity.

Thus there is no more danger of confounding the elephant with the bird or reptile than there is of so confounding the dog or sheep; nor can the anatomist hesitate about the mammalian character of the whale, despite its absence of hair and its fishlike aspect; and corresponding remarks will be found equally applicable in the case of every other class.

We have now to consider how the case stands with man. What is man's protection against the variations of the seasons and the rude contact of solid bodies? It is a protection altogether unique in the animate world. No division of the animal kingdom shows anything in the remotest degree like it. It bears no relation, beyond a remote analogy, to the shell of the mollusc, the scales of the reptile, the feathers of the bird, or the hair of the beast. The most tender-skinned of all the higher existences—the most acutely susceptible to every variation of temperature—the most liable to exquisite pain from the rough contact with external nature—man, nevertheless, is the most admirably protected of all living things, and defies alike the blaze of the tropics and the frigid horrors of the polar zone. Rivaling the bird and the insect in radiance of tint, in beauty and grace of form, the integuments of man have a thousand advantages which those of no other creature can command. The arctic fox assumes a warmer coat as the winter sets in, the tropical sheep takes hair in exchange for wool; but man at any moment can modify his clothing, and meet with equal comfort the wintry blast and the summer sun, the drenching deluge or the fury of the storm.

Man clothes himself with the spoils of the mineral, the vegetable, and the animal; clothes himself according to his pleasure, according to his lightest whim. His skin is put off or on as fancy dictates, and is hairy, or feathery, or scaly, silky or cottony, thin or pachydermatous, according to the exigencies of the moment. The chameleon changes not his hue more frequently or more rapidly than man changes his whole external covering. What consistency, therefore, is there in placing such a being in a group where everything is different, where the entire system of external protection is rigidly simple and almost unvarying in fixedness? If the whale has no hair to keep him warm, he inhabits a medium more equable in temperature than the air; he has a thick skin, an immense coating of blubber, and his different groups have special habitats. And if the rhinoceros is likewise hairless, he lives in a climate where he has to dread no cold; he has a hide which will turn a bullet, and he can therefore despise the plague of insects; but the skin of man is not thus suited to requirement: he is neither aquatic nor tropical, but universal; and, though his subdivisions have their specialities of climate, and their fractional adaptabilities to those climates, yet the very highest portions of humanity would find existence impossible

in the climates most suited to their well-being could they not call in the aid of artificial clothing.

Viewed as a beast, or, more politely, as a *mammal*, man is the most unprotected, the most abandoned, the worst correlated, as regards external conditions, of all known beings; while, viewed as a member of a higher group, all his relations are admirably consistent. His delicately susceptible skin is in perfect relation with his mental requirements, and his commanding intelligence has ample resources for bringing it into full consistency with the external world. Separated from the beast, there is no living thing more obviously in harmony with general nature; joined to the beast, he is a blunder and a blemish—an inconsistency which violates every law of arrangement and every principle of adaptation.

But, apart from all considerations of the protective resources which his superior intelligence creates, man differs completely from the entire class of beasts in the mere character of his skin. The peculiar delicacy of the external layer renders the entire surface of the body a most sensitive organ of touch. The hair of the head is quite unlike anything presented among beasts. Equally so is the soft and almost imperceptible down which, as a general rule, is the only covering of the rest of the body, with the exception of the eyebrows and eyelashes, the beard, and one or two other peculiarities. In all these respects man is entirely anomalous when classed with the beast; nor is there any perceptible relation between these specialities and the external conditions to which he is subjected. And when, besides, we look upon him as a first type in a new kingdom, and a type only partially developed, there is every reason for believing that time, instead of intensifying his relations to the beast, will separate him more and more completely from the entire animal kingdom.

The naturalist, absorbed in a special pursuit, following a narrow track, and guided by confessedly imperfect rules of classification, is apt to look upon man only in his rude and savage state, and to regard all his superior conditions and powers as accidents produced by adventitious circumstances, results of a self-culture forced on him by his very helplessness. But, if humanity be a growth, the savage is the representative of its infancy, and therefore cannot be a fit type or index of its true nature. If it be the law that a race must grow as well as an individual, then it is necessary that its early generations should be more immediately under the protection of the common mother than those which are more advanced. Hence we find that the physical provision is far more complete in the case of the savage than it is in that of the civilized man. The savage is more restricted in locality, blunter in his sensations, coarser in his tastes, more limited in his wants, and feebler in his intellect. His general condition is

but a few stages higher than that of the beast; but, nevertheless, when we look below the surface, we can easily see that he is the embryo of a great futurity, the possessor of powers which, however rudimentary and dim in his case, are ultimately to raise his race to a great and unquestionable pre-eminence.

The condition and wants of a human infant in the womb can be little, if at all, superior to those of an unborn calf or puppy, and yet the human infant is none the less a vastly superior being. If, then, the savage be simply the foetal condition of humanity, as everything shows him to be, his present lowliness is no evidence whatever of his close connection with the animal. It is the universal law of life that all growth shall commence far down, in obscurity and feebleness, and in a simplicity which almost reaches sameness, and yet every germ has its own unalterable stamp, so that structures which commence almost as identities may ultimately diverge into the widest extremes.

It is not enough for us, then, to look at mere appearances, still less is it legitimate to narrow our views within certain aspects of the question. It is time to perceive that, if man, within the brief period of his existence, has developed to the vast extent which separates the higher ranges of civilized from the lower ranks of savage life, while types which have been on the earth a thousand times or ten thousand times as long have shown nothing at all approaching to this progress,—it is time for us to perceive that, if man has thus advanced, it is because he has the germ of this progress, while, if all others have remained comparatively stationary, it is because they have no such germ, no such power of advancement.

The animal commences its existence as unconsciously as the plant, but as it advances in growth it opens out into perceptive life, while the plant continues unimpressible as before. Man begins his existence in the same lowly manner as the animal, but as the stream of generations rolls on he emerges into higher and higher states of being with a rapidity and to an extent which show him to belong to a new order of existences. Viewed as an animal, and above all as beast, he is at all points anomalous. Considered as a man, as a new type of being, he enters into the full consistency of universal nature.

§ VIII. ORGANS OF PREHENSION AND LOCOMOTION.

All the higher animals possess some means of prehension and locomotion, and these, in their details, are special to each class, varying even with the minor groups of each class. Progression, in the class of beasts, is usually accomplished by means of four extremities or legs, which produce

the movements of walking, running, leaping, swimming, and, in the case of the bats, of flying also. Prehension is accomplished in various ways, either by means of the anterior extremities, by means of both anterior and posterior extremities, by means of the teeth, of the tail, and even by an elongation of the nasal apparatus. In the class of birds the anterior extremities and the tail are exclusively devoted to locomotion, in the operation of flying; while walking, running, leaping, and swimming are accomplished by the posterior extremities; and these also, in conjunction with the beak, discharge the function of prehension. The reptile is in relation with the beast, rather than the bird, in its means of locomotion and prehension, while the fish is entirely special, substituting fins for legs, and having no prehensile organ but the mouth. The insect is very elaborately provided for in both respects, and even the mollusc is in many cases on a higher level than the fish. We need not occupy time by speaking of still lower groups, as the bearing of the argument will be abundantly evident from what will be said in reference to the higher classes.

It may be laid down as a fundamental law of vital mechanism that the specialization of functions and structures is, all other things being equal, in strict relation with the rank of an organism. The higher the organism the more distinct in purpose are its various subordinate structures; and therefore to find, without any sacrifice in other respects, a structure exclusively reserved in one group for a special purpose, while its equivalent in another group serves two or more purposes, is *ipso facto* evidence of the intrinsic superiority of the former group, if not in all respects, at all events, in many, and those important ones.

When, however, the exclusive adaptation of a structure to a special purpose leaves some other important purpose wholly or imperfectly attended to, then, of course, such a separate use will not be a sign of higher rank, but, on the contrary, will be found to result from an imperfect development of the structure itself. The limbs of a ruminant and pachyderm are wholly devoted to support and locomotion; but not because they have been especially adapted for a more perfect attainment of those objects, but simply because they present a degradation of type which limits their applicability. Therefore a clawed beast is, *ceteris paribus*, superior to a hoofed beast, if not in absolute volume of power, at all events in diversity of functions and relative intellectuality. And thus we see that, when Nature gives to a pachyderm an unusual amount of intelligence, as she does to the elephant, she also gives a special power of prehension to meet the requirements of that intelligence.

If, now, we turn to man, we find that he entirely differs from the beast in his means of locomotion and prehension. He is a biped, not a

quadruped; exclusively a biped. His foot is neither a claw, a paw, nor a hoof; it is a new adaptation of the previously existing elements, and one which separates him broadly from every other animal, not by the mere fact of shape or size, not by the considerations which are apt to move the mere mechanical observer, but by the relation which these structural diversities bear to mental purposes. This character of a biped is not a deterioration, but an advance; it demands no sacrifice, entails no incompleteness; on the contrary, it is in every way a gain. No animal stands more firmly or walks more securely than man. None can assume with ease and grace a greater variety of postures; and no structure offers so many facilities for repose. So perfect is the human foot for all purposes of support and locomotion, that the hand can be exclusively devoted to prehension; nor is this simply a possibility: it is the necessity of the case. The hand is exclusively formed for prehension, quite unfit for walking, and no animal but man *has* a hand. It is an abuse of terms to call the monkey four-handed; he is four-footed—four-pawed; his feet are *generalized* so as to serve both for prehension and locomotion; and, as generalized, they are inferior in both aspects. I do not of course mean that they are not perfect organs as far as concern the purposes of the monkey; but in the absolute sense they are inferior structures from the very fact of their being mixed structures. It is quite true that, as prehension is a higher function than locomotion, the foot of a monkey is, in a certain sense, a higher organ than the foot of a man; but then, again, the human foot is more perfect as a foot by the very fact of its having to make no sacrifice of its fitness in this respect in order to meet some other requirements.

In viewing the so-called hand of a monkey as a prehensile organ, the important fact has been overlooked that prehension with this animal means *locomotion*, and rarely anything else. The monkey is an arboreal animal; the ground is an accident to him; the branches of the forest are his *terra firma*, and Nature has given him limbs and feet exactly suited to his habitat, just as she has given them to the camel, to the elephant, to the whale, to the sloth, and to every other beast, without exception. The object of a hand is prehension, *irrespective of locomotion*; but the monkey no more needs prehension in this sense than fifty other animals. He has no more need of a hand special than a squirrel, a cat, or a parrot has. He requires to seize his food or his antagonist just as the tiger does, but there is no purpose of his existence that requires a hand in any such senses as a man requires one. Wherever Nature gives a structure, we always see that there is a necessity for it, and a necessity imperative in proportion to the speciality of the structure. In the only case in which she has given a real hand, we see that the gift was indispensable; without a hand man would be an abortion;

he would possess powers which could have no adequate expression, and which, nevertheless, would ceaselessly struggle for expression, and therefore be a constant source of vain longings and tantalizing efforts. But what special powers can the monkey lay claim to, in order to justify his possession of a true hand? He has no higher order of life than most other beasts; he is not nobler than the dog or cat, or even so noble; he is not more prudent than the elephant, more sagacious than the shepherd's dog, and even in his special attribute of mimicry he is beaten by the parrot and the mocking-bird. He has no constructive powers, he needs no delicate handling of minute objects, and he has no thoughts which demand perpetuation in graphic or pictorial forms; why, then, should he have a structure which has no meaning apart from considerations like these? What he wants is a *grasping foot*—a foot that shall enable him to stand, to walk, to run, to leap, and to swing amid the branches of the forest, and, when needed, to tread the ground with reasonable comfort, speed, and safety; and this is precisely what Nature has given him. She has fitted him for his special place and character, just as she has fitted the camel, the whale, the seal, the otter, the beaver, the bat, and, above all, the sloth. She has specially modified his extremities as she has modified theirs, and all for the self-same object—locomotion. How, then, are we justified in saying that a monkey has hands, while we refuse to say that a sloth or squirrel has hands, or a whale fins?

It would not, indeed, matter in the slightest degree whether we used the term hand or foot in this case, provided we regarded the word as simply technical, and drew no ulterior inference from it; but it matters very much when the term and the resemblance it indicates are assumed to be evidence of a near relationship between this so-called handed beast and a being of an entirely other order, who possesses the speciality of a hand truly and exclusively such. It then becomes necessary to look beneath the surface and see whether the two forms have really the same import and application. When we do this we find that the hand of man no more supplies the place of a foot than his elbows or knees do, while the so-called hand of a monkey is constantly used as a foot, and rarely as anything else.

An arboreal life, conjoined with extreme activity, great relative strength, and a considerable amount of intelligence, requires, in the case of this animal, instruments of prehension of a high order, in all that concerns large and solid objects. He has therefore what is called an opposable thumb on both posterior and anterior extremities; and furthermore, as the nature of his movements keeps his body in a great measure in a semi-erect position, thus throwing the principal weight on the hind limbs, these assume more of the character of true legs and feet than the anterior

members. But all these adaptations are totality irrespective of any superior intelligence; their main purpose is locomotion, and therefore they are, in every true sense, varieties of the foot, and not approximations to the hand. In fact, these structural resemblances between the human and simial types no more make the monkey a partial man or man a partial monkey than eyes or ears make man a partial beast, or than his thighs make him a partial bird. It is intrinsic nature, it is ultimate purpose, it is character of mind, which makes the difference between animal and animal, group and group; and here all must acknowledge a *de facto* gulf, deep and vast, between man and the inferior world.

Man, then, is the only animal that has a genuine hand, the only animal that needs one; and the myriad purposes to which he applies it are ample evidence of its necessity to him. He thus differs in a most important respect from every other animal group. He is as much specialized as a class by his anterior members as the bird is. The hand is as clear an index of his entire nature as the wing is of that of the bird. Thus, even by external peculiarities, by his skin, his hair, his feet, and his hands, he justifies the claims set forth by his intrinsic nature, and merits the distinction of initiating a new and superior order of existences, even if we confine, for a moment, his pretensions within the limits of a class.

The locomotion of animals has two main objects—safety and the pursuit of happiness. In this respect the fleetest is the most gifted, if speed entails no sacrifice. It evidently does so in the case of many animals, but not so in that of man. Fleeter than the fleetest bird, man flies with the speed of the whirlwind; and yet his wing droops not from fatigue. He bends nature to his purposes, and creates for himself new organs, new limbs; and these he assumes or lays aside at pleasure. Taming the horse and the camel, he speeds over desert and plain with almost bird-like rapidity; seated in his ship, he cleaves the waters with a strength and speed which dwarf into pigmy efforts the fiercest struggles of the wounded whale; or, stepping into his aerial car, he pierces the clouds and mounts into dreary solitudes, into which even the condor will not follow him. But, not content with all this, he seeks to annihilate time and space, if not for his body, at least for his mind, and almost literally fulfils the aim. The very lightnings of heaven, which touch other animals only to destroy, have become tamed in his hands, and do his daily bidding with an obedience more pliant than that yielded even by his faithful horse or dog. Are not these things sufficient to justify his separation from the group of beasts?

So far for action. As regards passive safety, no animal is so amply provided for. Shoes shield his feet from the asperities of the ground;

clothes protect his body from cold, from heat, from rain, give a new charm to that which is intrinsically beautiful, and render sacred that which the mind seeks to conceal; and what clothing will not accomplish the house supplies. There man is secure from every inclemency of the seasons, and from every foe but those of his own race. The hide of the rhinoceros, and the shell of the tortoise, are but as gossamers when compared with the wall of rock which he can there interpose between himself and his foes.

As regards active safety, the contrast is precisely the same. No living thing is so terrible to his foes. Without horns, or claws, or hoofs, or biting tooth, or lacerating beak; with delicate hands, tender feet, weak nails, and a naked and acutely sensitive skin, man, nevertheless, walks the earth a king, and lays prostrate every living thing that dares to contest his superiority. If his club fails, he seizes his sword; if this will not do, he bends his bow, and strikes his victim in its most rapid flight. If even this be insufficient, he levels the long-reaching and deadly rifle; and then, towering in destructive might above the entire animal world, and meeting an adequate foe only in his own race, he shakes earth and heaven with the thunder of his artillery. And this is the being whom we are to bring down to the proximate level of the ape! And these are the things to which we are to shut our eyes, in order that we may be men of facts!

As regards food, the distinctions of class are less marked. The food of all animals is fundamentally the same, and even as regards its two main divisions of animal and vegetable, there is no class in which both is not consumed by one or other of its sections. Yet even here man is pre-eminently peculiar. He is the only animal that needs, or uses, except by accident, artificially prepared food. And he *does need* this. In his higher conditions as a civilized being, it is his habitual and appropriate nourishment. He needs flesh, and, except in some of his lowest and grossest conditions, he cannot possibly eat this raw. His teeth are not strong enough to tear and masticate it, his appetite revolts from it: it is in every way unfit for him until its qualities have been seriously modified by artificial preparation. Even unprepared vegetables are only in certain cases suited to his wants, and could not supply him with adequate nourishment. But, as soon as he brings the art of cookery to bear, he creates an amount and variety of food which places him at the same immeasurable distance above all other animals that his previous attributes have placed him.

§ IX. SLOW DEVELOPMENT OF MAN.

Next to the preservation of individual existence, the most important function of animal life is the production of offspring; and for this function

Nature has made the most ample, varied, and admirable provisions ; and, in the case of the insect, these are often wonderfully elaborate and well suited to the remarkable intelligence of these seemingly insignificant creatures. With the fish, which, though a very important group, in a physical sense, has a form of life far more lowly than the insect, matters are very simple. The ova are first shed, than impregnated, and subsequently left to the care of Nature. The reptile is much less at the mercy of circumstances, and the offspring of the bird and beast are amply protected, both by structural arrangements and parental tenderness.

With some exceptions in the case of the insect, every animal below the beast reaches, we believe, the period of puberty within the space of a year, even when the duration of life extends to many years. With the beast, adult age is reached in from a few weeks' time to three or four years, and the animal is able to help itself to a greater or less extent in the course of a few days or of a few weeks, according to its order.

With man, however, a new condition of things presents itself. Not only is foetal life long, extending to some nine or ten months ; but, at birth, the infant is so little advanced in development, that nothing but the most tender and watchful parental solicitude could bring it safely through the dangers of its long infancy. For nearly a year it is unable to walk, or even to stand ; for two or three years its step has little firmness. Twelve, fourteen, or even sixteen years, may elapse before the approach of puberty, and eighteen, twenty, or more, before its completion ; and even then the *character* is unformed, the mind is but a promise, and thirty, forty, even fifty years may pass before we have the complete man. Nay, there are some portions of humanity in whom mental progress is not arrested even then ; men in whom actual old age must show itself before some of the higher feelings reach their full maturity.

And why this tardy development ? Are the vital processes slower in man than in the beast ? Do the elephant and rhinoceros develop in briefer times the nucleated globules of which their tissues are formed ? There is not, that we are aware of, the shadow of a reason for answering in the affirmative. It must, then, be *because there is more work to be done—more to be built up*—in the one case than in the other. It is evident, indeed, that the mental organism must be far more elaborate in structure than the other tissues of the body, since, though growing from the beginning, it is so late in reaching maturity. No doubt there are here partial arrests of progress, structures which are delayed in their growth until due preparation is made for them by the maturity, or proximate maturity, of other structures ; but this is still saying that, when the aggregate progress is slow, the aggregate structure is high and complex, and the aggregate

amount of work great. If the human structure differed so little from that of the beast as certain theories imply, and as many of the advocates of those theories so emphatically assert, why is it so slow in reaching adult age? and why, afterwards, does its mental portion, as indicated by increase in power, still continue to advance during so many years longer?

But there is nothing to indicate slowness in the vital processes of man. He is not so generally mobile as the dog or monkey, or as some of the smaller rodentia, but he is more so than the generality of beasts; nor is any beast more vivid, flesh-like, or electric when occasion requires; why, then, this slow growth if it be not that he has a far more complex organism than any other terrestrial existence? If a cow can reach in ten months, and an elephant in twelve months, a physical status which a man cannot reach in less than three or four years from conception, there surely must be a physical reason for this difference. It is clearly not a question of aggregate size; for the cow and the elephant have by far the larger mass of material. It is equally plain that it is not one of more rapid vital action, for man is by far the more active animal; and, as activity means rapid expenditure and correspondingly rapid supply, these conditions can only be met by correspondingly rapid formation, and this means corresponding rapidity in the processes of digestion, secretion, circulation, respiration, nutrition, repair, &c., &c.—in fact, corresponding rapidity of growth. If we look down the animate chain we everywhere see that rapidity of development means, in the long run, simplicity of structure. If the bird develops more rapidly than the beast, it is not only a more mobile animal, group for group, and a smaller one, but has also a less elaborate cerebral structure. The reptile and fish have still smaller and simpler brains; the insect, though so gifted, has a cerebral structure which, comparatively speaking, must be very simple indeed, though it is obviously very efficient.¹

¹ Complexity of structure does not, in fact, always and necessarily mean superiority under every point of view, for a simple lever may lift a weight as efficiently as a combination of wheel-work. But the wheel-work implies that the act of lifting must be performed under a higher range of circumstances than simple leverage can meet. The structure of the insect would be utterly unsuitable to the large masses of matter required in the case of the mammalia. Hence the necessity of an internal skeleton for the latter; and, this granted, muscles, nerves, blood-vessels, &c., must be proportionally large, numerous, and complex; and there must also be a corresponding size and complexity in the cerebral organs, which are to move and regulate this elaborate scheme. But it is conceivable that all this may exist without either greater or more varied primary powers than those possessed by the insect, which, having a limited and simple sphere of action, is able to work with simpler appliances. This, I believe, is the true explanation

And thus organisation progressively simplifies as we descend, and rapidity of growth progressively increases, until we at last reach creatures whose total lives are but days or hours. Slowness of growth, then, is an unequivocal index of complexity of structure, certain allowances being made for size and general mobility; and therefore, when we come to animals far larger and slower than man, which nevertheless reach maturity with far greater rapidity, it is plain that they do so because they are less highly organised, because they have a less complex structure in one respect or other. And yet, in the presence of all these great facts, naturalists persist in talking of man as if his physical structure were that of a beast: not more complex in anything worth mentioning than that of a cow, an elephant, or an ape!

L. BURKE.

(*To be continued.*)

OUR BRITISH ANCESTORS: WHO AND WHAT WERE THEY?¹

THE Greek fable of the combat of Hercules with the many-headed Hydra has been explained as an allegory representing the extirpation of human error by Divine knowledge. The Greek demi-god found by experience that the simple excision of a Hydraic head merely caused the reproduction of a numerous offspring of like nature, sprung from the blood of the amputated original. Hence he was obliged to resort to the use of the actual cautery, and to quench in fire the reproducing blood of the slaughtered monster. So it is with some ethnologists, anthropologists, and archaeologists. We have no wish to make a martyr of the Reverend Samuel Lysons, M.A. and F.S.A., or to recommend that he should figure in an *auto-da-fé*, clothed in a cap and robe covered with figures of ancient druids, of sprigs of mistletoe, of cromlechs and dolmens. Nothing short of some such awful example will, however, prevent the constantly-recurring publication of ponderous volumes in which the Hebrew, Phœnician, or

of the wonderful and varied instincts of such minute and simply organised creatures as the ant and the termite; and it also shows us how some elementary sensations are possible, even to such microscopic beings as rotifera and infusoria.

¹ *Our British Ancestors: Who and What Were They?* An Inquiry serving to elucidate the Traditional History of the Early Britons, by means of Recent Excavations, Etymology, Remnants of Religious Worship, Inscriptions, Craniology, and Fragmentary Collateral History. By the Rev. Samuel Lysons, M.A., F.S.A., &c. Oxford and London: J. H. and J. Parker, 1865.

Hindoo origin of our so-called "British ancestors" is proclaimed with a pertinacious indifference to evidence, and a supreme contempt for all that has been acquired during the last fifty years in the way of philological learning. To attempt anything like a critical examination of the work before us would be perfectly idle. Mr. Lysons belongs to a class of writers who defy criticism. Living in an ideal world of their own, and complacently following the path traced out *a priori* by their own imaginations, they calmly ignore all results of investigation by others which might, if permitted to obtrude upon their charmed circle, raise doubts or difficulties fatiguing to combat or impossible to overcome. In the matter of etymology their course, when left to themselves, is easy and pleasant. Coincidence of sound is their guide, philosopher, and friend; and certainly, of late years, no disciple of the doctrine has more devotedly followed that simple clue through the labyrinth of lost history than Mr. Lysons.

No doubt the question proposed by Mr. Lysons, "Who were our British ancestors?" is a very interesting one, and well worthy the trouble of investigation, if, indeed, there are any materials on which to found the inquiry. At first sight those materials appear to be sufficiently abundant, and to consist of two kinds—monumental and philological; the former, the mounds, tumuli, and their contents, the stone circles, standing stones, and cromlechs—the latter, the names of places and persons, particularly of places; and it is to the philological branch of the inquiry that Mr. Lysons has chiefly directed his attention.

The author was led, he informs us, to the present inquiry by what seemed to him "the-remarkable coincidence that the names by which the British tumuli (at the investigation of many of which he has assisted) are still popularly called, are for the most part the titles little, if at all, corrupted by the lapse of ages, of the divinities worshipped in the ancient mythologies of Canaan, Chaldea, Babylonia, and Assyria, those cradles of the human race, such as we find them recorded in Scripture, and treated of at large in the interesting essays and notes on the Assyrian and Babylonian Pantheon appended to Rawlinson's translation of Herodotus. Finding, therefore, a certain similarity of language and of religion, the conclusion seemed inevitable that there must also be some ethnological affinity between peoples so circumstanced."

It is especially to these people to whom is to be attributed the erection of those sepulchral tumuli in Britain which yield on examination no trace of metal, and whose constructors have been supposed (in Mr. Lysons' opinion, erroneously) to have been in possession of instruments and weapons only of flint, or stone, or bone. In other words, the inhabitants of Britain during the so-called stone period were of Hebrew origin.

"It is not a little remarkable that every long-barrow in this county (Gloucestershire) of which I have been able to ascertain the popular name, still retains an appellation identifying it with the worship of the sun or the moon, under its various phases and attributes, in the Hebrew, Chaldee, or a very near cognate language, such as that of the British must evidently have been," p. 151. If these statements are well founded, and can be borne out by reasonable evidence, they open to us a very important chapter in British Ethnology. We get possession of the ethnic affinities of the builders of the sepulchral tumuli of Britain, containing flint weapons only, and distinguished by the absence of metal, either bronze or iron, and have presented to us the means of constructing, to a considerable extent, the representatives of the language, the religion, the manners and customs of this ancient people. There is certainly one difficulty which presents itself at the outset, and which, to some, might at first sight appear a formidable obstacle. "The religion of the Britons," says Mr. Lysons, "appears to have been very much the same as that professed by the inhabitants of Palestine at the earliest period of its history; in short, that which may be called the patriarchal or pre-patriarchal religion; that which gradually degenerated from the worship of the one true God, during the interval of time between Noah and Abraham; that against which Joshua warned the children of Israel, and which appears to have been adopted by Abraham himself before his call, when he received a special revelation of the true religion from God himself." In short, the worship principally of the sun, the moon, and the heavenly hosts, under different aspects and with different attributes.

Now a people who migrated from Canaan or Babylonia to the British Isles, bringing with them the worship of the celestial bodies, and perpetuating by their monuments the names of those deities, El, Baal, Bal, Ashur, Dag, &c., must have belonged to that race of men who spoke some dialect of the languages to which the name of Semitic has been applied—must, in fact, to use the language of our author, have been the descendants of Shem. On this point he is troubled by no doubts. "We gather," he says, "from the names attaching to the British monuments still remaining among us, when divested of modern corruptions, that there is a strong affinity between these British names and that language of which Hebrew is the original or one of its earliest offshoots, and that, therefore, Hebrew, Chaldee, or some other very near cognate, must have been the language of the first inhabitants of this island," p. 93. We fear that the manipulation which these British names undergo in the process of divesting them of modern corruption is in many instances a very Hebraizing process.

But the same revelation which relates the history and settlements of

the Semitic race declares also that the isles of the Gentiles, by which Mr. Lysons understands, among others, the British Isles, were peopled by the descendants of Japhet. In fact, the great *cheval de bataille* of Mr. Lysons and his predecessors in the same etymological school is the peopling of Europe by the descendants of Gomer, the son of Japhet.

Mr. Lysons confesses "that, were it not for the universal tradition which assigns our descent to Japhet, he would have been rather inclined to attribute to the British Celts a Semitic origin, both on account of the relics of worship which we find in Britain, and also on account of the language, the traces of which we find still attaching to the names of those places where they carried on their religious ceremonies."

That is to say, there is a difficulty in considering them to be the descendants of Japhet, because their language and religion were both Semitic. That difficulty is overcome by the consideration that "the religion professed by our British ancestors was the universal deflection from the only true worship, and that the language which we trace as handed down to us in the names of places, still retained, was the language at one period pretty well common to the world." How that view is to be reconciled with the Trojan-Assyrian theory, presently to be noticed, we do not profess to understand.

The proofs offered by Mr. Lysons in support of his views are certainly remarkable in character and abundant in quantity. He has given a list of no less than 225 authors whose works he has consulted on the questions mooted in his Inquiry. A most copious and heterogeneous list it is: Orpheus, Ovid, Virgil, and Hesychius, Todd's Johnson's Dictionary and Ellis's Polynesian Researches, Berosus and Sir Gardner Wilkinson, Clemens Alexandrinus and Milton's Paradise Lost, St. Chrysostom and the Rev. E. Duke, Iamblicus de Mysteriis and Davies' Celtic Druids. It is unnecessary to say that Mr. Lysons is a firm believer in the Druids. "Whatever errors may have gradually crept into the worship of the Britons, there are good reasons for believing that the Druids were a wise, thoughtful, and religious race," who have been much belied in the matter of human sacrifices and others. It is clear that they were not idolaters, since no images or idols of any kind have ever been found in any sepulchral barrow of the ancient Britons.

To return to Mr. Lysons' proofs. Mr. Lysons is a staunch advocate of the monogenic view of ethnology—the descent of all races of men from one pair of original ancestors. He says, that all mankind had a common origin seems evident from this fact—viz., that of a common Fall, which argues a common redemption—and cites many portions of the apostolic writings in proof of this view. We do not mention this in any disparaging-

ment of the line of argument adopted by Mr. Lysons on this disputed point in ethnology; for every man must walk by such lights as may be given to him, and cannot do better than abide by that which he may conscientiously believe to be the truth. We notice them to show the mental conditions under which this inquiry has been undertaken. Starting with the presumption as a fact that "of one blood God hath made all nations of men to dwell upon the face of the earth, and hath determined the times before appointed and the bounds of their habitation," he proceeds to investigate the question as to which branch of the great human family our British ancestors belong, their progress or retrogression in matters of religion and civilization at various epochs, the place whence, and the probable times when, they came into this country. The nature of the groundwork and principal foundation on which the whole investigation has been made to rest in the work before us may be gathered from the following portion of the introduction:—"It is not my object to touch upon the religious part of the question more than is absolutely necessary; but, in giving a sketch of the probable history of our British ancestors, it is necessary to go back to the history of histories, the only history which pretends to give a rational account of men's origin and the first peopling of the world, for an inquiry as to which branch of the human family we belong to, who and what we were, and what reasons there may be for our conclusions."—*Introduct.* p. vii. This is, no doubt, a very proper intention to set out with; but we shall find, as we proceed, that Mr. Lysons pays but little heed to the history of histories, and plays fast and loose with Shem and Japhet, in a manner calculated to excite grave doubts as to the genuine orthodoxy of his opinions.

Not content with the authority of Moses, he also cites that of the early writers of Christian times, usually cited in such cases, to prove the first colonization of Europe by the descendants of Japhet. He does not seem to perceive that all these writers are merely repeating in other words the statements contained in the Hebrew Scriptures. What additional weight do the statements of Josephus, St. Chrysostom, Theophilus Antiochanus, or Clemens Alexandrinus give to the original statement in the Book of Genesis? Is it to be supposed that they knew any more about the matter than Moses did? Sift them as we may, we get nothing more out of these pious and voluminous writers than the old story of Gomer, Gomerians, Cimmerians, Cimbri, Galatians, and Gauls—a whole library of conjectural history created from the few vague and uncertain words of the Hebrew text.

The same total want of the power to appreciate the value of evidence appears in our author's reference to the non-Christian writers. "Diodorus

Siculus says that in his day the aborigines still inhabited these islands; *so that, whatever their origin may have been, the same race was inhabiting this country in the first century of the Christian era,*"¹ p. 17. We may reasonably believe that Diodorus Siculus was altogether ignorant of the origin of the aborigines, whatever that may mean, or whatever it may have been.

It is necessary to repeat that by "our British ancestors" and "the first inhabitants of Britain," "this primitive people" whose language was Hebrew or a cognate tongue, Mr. Lysons always, throughout his Inquiry, means that people whose remains are found in the non-metalliferous tumuli of Britain, especially that class of tumuli called, from their shape, long-barrows. It is necessary to bear this in mind, in order to appreciate the very remarkable line of argument by which the author seeks to establish his views of the origin and relations of these earliest inhabitants of Britain.

These people of the age of the non-metalliferous tumuli were not by any means the mere destitute savages which some writers have represented them to have been; for, as far as we can understand Mr. Lysons, the first peopling of the island of Britain took place shortly after the taking of Troy, or in the twelfth century B.C. He seems to favour the theory, probably popular as far back as the time of the Roman occupation of Britain, and repeated by Nennius, Geoffrey of Monmouth, and all the older historians, that the first inhabitants were of Trojan origin, who, after the capture of their city, flying from the wrath of the Greeks, succeeded in reaching the sheltering shores of Gaul and Britain. Mr. Lysons is not quite clear about the Trojans, because he thinks "we ought to inquire who were the Trojans who were engaged in that celebrated war. The learned Bochart thinks that Lesser Phrygia, of which Troy was the capital, was peopled by Ashkenaz, Gomer's eldest son, because names of men and places in that country retained the commemoration of their founder; and, although this fact does not settle so intricate a question, yet, combined with other circumstances, it gives considerable colour to the suggestion," p. 15. But, in the next page, our author seems rather to favour the notion that these first Britons were not so much Trojans as Assyrians; for he observes that "we meet also with this interesting historical fragment. Diodorus, quoting from Ctesias, tells us that 'Teutamion (the twenty-sixth king of Assyria after Ninus), who reigned about the time of the siege of Troy, sent a considerable number of men to help the Trojans, under the command of Memnon, son of Tithonus.' Is it not in every way consistent with such a statement that, after the unsuccessful termination of their

¹ The italics, in this and other passages quoted, are our own.

expedition, these auxiliaries should have wandered farther in search of other settlements and conquests; *and is there any improbability in the suggestion* that these rovers may have been our first colonists, when we find a tradition long existing, and when we find the same language and religion, as I hope to show as I proceed, prevailing both in Britain and in Assyria and its conterminal countries?" p. 16. As Mr. Lysons attributes to these colonists, whether Trojans or Assyrians—"Tros Tyriusve mihi nullo discrimine habetur"—the construction of the long-barrows, he has to account for the total absence of objects of art, instruments of domestic use, or weapons of war fabricated from metal, in the sepulchres of a people who undoubtedly left the walls of Troy armed in panoply of brass, and accustomed to the use of metal as well in the chariot as the plough. The fact that in many instances implements of stone and flint have been found intermingled with implements of brass and even of iron is used by Mr. Lysons as an argument to discredit the division, perhaps too sharply pronounced by some archæologists, of the prehistoric ages into those of stone, of brass, and of iron. But he inquires still further if we ought to hold that there ever was a time when the use of metals was unknown. "We certainly read," he says, "in Genesis iv. 22, that Tubal Cain, who must have been as much as two, or perhaps three, hundred years contemporary with Adam, was 'an instructor of every artificer in brass and iron.' It is not even said that he was 'the father of these,' i.e., the originator, as Jabel and Jubal are called, of their discoveries, but 'an instructor.' If, therefore, there ever was a period when stone or flint implements only prevailed in the world, it must have been in the first six or seven centuries before the era of Tubal Cain. But then what becomes of the two distinct bronze and iron ages of which modern theorists speak? We find Tubal Cain using both simultaneously," p. 11.

We have thought it necessary to present these views in the author's own words, lest we might unintentionally misrepresent an argument which aims at explaining the phenomena presented by the oldest sepulchral mounds of Britain by aid of the fourth chapter of Genesis. The reason why flint or stone implements, and not metallic ones, are found in those barrows appears to be, that the former "entered into all operations of a religious or superstitious character among those primitive peoples, and thus, as in the case with Joshua, it seems to have been the custom to bury with them these evidences of the most remarkable transactions of their lives, especially perhaps those implements which were used at the last crowning scene—their inhumation. Parkhurst, *Heb. Lex.*, shows that flints were used as surgical instruments to a late period. Every circumstance connected with these long-barrows seems to point to Baal

worship," p. 151. It would have seemed to be impossible that any one who had examined any large collection of stone and flint instruments from sepulchral barrows should have come to the conclusion that their owners and manufacturers could have been in possession of instruments of metal, or could have occupied such a stage in the world's history, as is implied by the story, whether true or false, that they had been actors in the great drama played before the walls of Troy.

Passing from the historical to the philological proofs of the Semitic origin of these descendants of Japhet, we find them to be so numerous that we can only select a few of the more striking examples.

A barrow lately opened by Mr. Lysons is locally situated in the parish of Rodmarton, and is known in the neighbourhood by the name of Windmill Tump. It is a long or egg-shaped barrow, with interior walls, many interments, particularly rich in human remains, and belonging to the flint age of such monuments. It might be thought that the name of the mound had some relation to a windmill once existing there or in that neighbourhood. Mr. Lysons says there never was a windmill there. Rodmarton, he says, is a word of Hebræo-Celtic origin, meaning "the place of the setting sun." *Rodh*, Hebrew and Chaldee, "to descend, go down, decline as the day;"¹ *Maur*, or *Mor*, "the sun;" *Ton*, or *Tun*, a fixed place, as in Toorkis-tan, Afghanis-tan, &c.²

Windmill Tump has nothing to do with a mill. The true name is Winmill. *Win* = *Oyn*, "an eye, a fountain;" *Win-Melech*, "the eye of Moloch," or *Win-Molah*, "the full eye of the sun," appropriately situate at Rodmarton, "the place of the setting sun."

Northampton, Southampton, Littlehampton, Sevenhampton, &c., have generally been supposed to be names of Saxon origin. Mr. Lysons, of course, detects in the central element of those compound names the Hebrew *kham*, "heat." Sevenhampton is a village in Gloucestershire, near which, at no distant period, several sepulchral barrows existed. According to Mr. Lysons, this name means "the place of worship of the solar heat *par excellence*," being compounded of "Sivan," "Ham," and "Ton." The name of Sivan is found on the Khorsabad cylinders as the name of the month sacred to Sin, or the Sun. "Ton" is of course the same as "tan" in Afghanis-tan, &c.

Mr. Lysons does not explain how it is the word *kham*, which he interprets by the Hebrew *kham*, "heat," which appears so abundantly in names

¹ Mr. Lysons throughout gives the Hebrew characters. We have not thought it necessary to incur the expense of doing so, as nothing turns on the value of the letters.

² It is hardly worth while to observe that the last syllable in Toorkistan, Hindustan, &c., is not *tan*, but *stan*.

of places in Saxon Britain, is not found in the really Celtic districts, Wales, the Gaelic Highlands, Ireland, and Brittany.

The county of Surrey derives its name from *Sur*, Hebrew, "a bull," and is therefore the same as Syria. "Surrey and Syria are equally places of the Sun, or places of bullocks," p. 546.

Baal-peor crops out at Belper, in Derbyshire; Ashby, which unenlightened philologists have hitherto supposed to mark by its termination a Danish settlement, is the Babylonian *Ashbi*; and York and Warwick are "the phonetic representatives of one of the chief Babylonian cities"—*Orech*, the modern *Warka*, in Arabic *Irak*. Calne, in Wilts, is the Hebrew *Calneh*; Esher, in Surrey, is the Hebrew *Asher*; while *Bel* and *El* make their appearance in places too numerous to mention. If further proof were wanting, there is a place in Gloucestershire called *Hamath*, near which is *Ararat Hill*.

To this we may add, as a feeble contribution of our own, that there is a place called *Paradise*, which is a direct memorial of the Hebrew tradition brought over to Britain by the descendants of Japhet.

But the crowning mercy of Mr. Lysons' investigation is the solution of the puzzle contained in the name of "Hetty Peglar's tump." This is a long-barrow near Stroud, in Gloucestershire. Dr. Thurnam remarked there was a record of Henry Peglar and Hester his wife on a tablet in Uley church, in that neighbourhood, dated A.D. 1695, and ventured to connect therewith the popular name of the Stroud tumulus. Mr. Lysons rejects this very common-place view of the matter, and explains the name thus. "Hetty" represents, in a corrupted form, the Hebrew *Hetke*, "heat, the scorching sun"—the Scriptural *Etham*; "Peglar" stands for *Peleg*, "division, distribution;" and the meaning of the whole is, "the Mound or Tump of the Light Distribution," i.e., the Sun.

Another mound, called by the country-people Nan Touces' or Nan Stow's Tump, is *Nantaush*, "the diffuser of light or fire." Money Tump, thought to have been so called from the fact of coins having been found in it, derives its name from *Mene*, a name of the sun, who was worshipped by the Moabites under the name of *Baal Meon*; so Money Ash, in Derbyshire, means "the fire of Mene."

We will conclude with an extract which, we confess, astonishes us even more than Hetty Peglar herself. *Mil*, in Hebrew, means "to tear in pieces;" *Nisr* has the same meaning. *Milvus* is, in Latin, "a kite;" *Nisrock* was the eagle-headed god of the Assyrians. Upon these facts our author thus observes: "If any one fact more than another shows the connection of the mythology of Britain with those of Assyria and Chaldea, it is the worship of the hawk-god, called also *Nisrock* (*nisr*, "to tear in pieces"), a

synonym of *mil*, worshipped at Milverton, in Somersetshire and Warwickshire," p. 306. That is to say, there is a place in Britain called Milverton; therefore the God *Mil* was worshipped there; and *Mil* = *Nisr*, therefore = Nisroch, the hawk-headed god of Assyria; therefore the ancient Britons worshipped *Nisroch*, and their language was Hebrew, Chaldean, or Assyrian. .

It is not enough that our British ancestors should have been Hebrew, Assyrian, and Babylonian, worshippers of the most copious possible pantheon of divinities; it appears, also, that they were Buddhists. "The discovery," says Mr. Lysons (though how the discovery was made we have been unable to ascertain), "of the same worship among the Buddhists of India and the Boduni of Gloucestershire is not a little striking, while the identification of the mode of construction of their sepulchres adds no little interest to the circumstance. It seems difficult to reject the conclusion that a people having similar worship, similar sepulchral rites, and similar names for their deities, had a similar origin," p. 117.

If we find it too difficult to reject this conclusion, we must necessarily adopt the other conclusion—that the Buddhists were either Hebrews, Babylonians, or Assyrians. For Mr. Lysons has shown that the language and religion of the Britons were Hebræo-Assyrian; if, therefore, these were the same with those of the Buddhists, the Buddhists must also have been Hebræo-Assyrian. We had been led to believe that the Buddhists were a religious sect, among whom were to be found races as distinct as the Aryan Hindoo and the Mongolian Chinese, whose origin was well known, whose first appearance dates from a period altogether modern compared with any possible era of the British long-barrows, and well ascertained by trustworthy contemporary history. What there can be in common between these and the Boduni, otherwise Dobuni, of Gloucestershire it is impossible to conceive. We suspect that the similarity of sound in the first syllables of the two names forms the real bond of connection between them.

It is not necessary to spend much time in recapitulating facts so well known and so universally recognised as that it has been repeatedly and abundantly proved that the Celtic language is a member of that family of languages which has been called Aryan or Indo-Germanic, and to which belong the Latin, the Greek, the Teutonic languages, the Zend and the Sanscrit; that the harder, and perhaps older, branch of the Celtic, the Gadhelic, presents very near affinities, both radical and grammatical, with the Latin; that none of these can by any possibility have been derived from the Hebrew or any other Semitic tongue; and that to talk of a Hebræo-Celtic dialect is strong evidence of philological insanity. To take

such pure Saxon words as *ham* and *tun*, and to give them the meaning of words of similar sound in Hebrew, is worse than insanity. To this Mr. Lysons would probably reply that, before the confusion of tongues, the whole earth was of one language and one speech, and that Hebrew, Greek, Latin, Celtic, and all other known dialects are mere developments of one original primeval tongue; and in this view of the matter he takes the modern English forms of Saxon words and identifies them with another different development (the Hebrew) of the lost primeval language. Thus, in such a word as Ash-down, "Ash," he says, is the Hebrew *ash*, "fire;" altogether disregarding the fact that Ash-down was originally called *Æse-an-dune*, and that *Æse* in Saxon does not mean "fire," but an "ash-tree." In fact, he ignores the Saxon element in the names of English places, except in cases where he finds a compound name made up of two words, one Hebrew and the other Saxon, the one the translation of the other, as in Cotswold=*Cottes-weald*, both of which signify "wood," the first being Hebræo-Celtic—*Coed*, in Welsh="wood"; *qtl*, in Hebrew, "to cut," "anything cuttable," *i.e.*, wood.

We take leave of Mr. Lysons and his Inquiry with the conviction that no argument of ours would have the slightest weight with him in contradiction of his fixed ideas on this subject, and also, we regret to say, in the belief that the public in general will prefer his views to ours. There is a considerable number of persons who will be delighted to trace their descent from that darling Mesopotamia. We recollect a plausible individual who made a passable living by lecturing to prove that the Saxons were the lost ten tribes of Israel, and that therefore the English people were Jews by descent from "our Saxon ancestors." It is the same theory as that of Mr. Lysons, only commenced a couple of thousand years lower down in the chronological scale.

The Hebrew origin and affinities of the Celtic peoples—and the Celtic language especially—has always been a favourite speculation with a certain class of inquirers. It has the double merit of being an orthodox, as founding itself on the Hebrew Scriptures, and not a difficult pursuit. An English Bible and a Hebrew Lexicon are the principal *apparatus* required. There is nothing new under the sun. The Welsh theory, as handed down by the Bards and Druids, is that Adam and Eve spoke Welsh in Paradise, and that the Hebrew is a corrupt kind of Welsh.

Jacob Bryant, to go no farther back than the close of the last century, proved to the satisfaction of many earnest inquirers that every monosyllable in the English language—*Al*, *El*, *Bal*, *Bel*, *Ar*, *Or*, *Ur*, *Sam*, *Tan*, &c., &c.—were pure Phœnician names of the deity, the Sun or Fire god, or the Bull or Fish god, or connected with traditions of the Noachic

deluge. A few years since an ingenious gentleman, the author of "Suggestions on the Ancient Britons," not only went over the whole ground now newly turned up by Mr. Lysons, making out the Hebrew derivation of the names of English places, but also turned the whole of the old British poem, the "Gododin" of Aneurin, into what he called Hebrew, and showed plainly enough that it described the game of chess and the origin of the Order of the Garter. Another, in an essay entitled "The Irish : Who are They ?" demonstrated that the Irish language was the same as the modern Persian. We do not see either of these works in the list of those consulted by Mr. Lysons, and we recommend their perusal in case of a second edition of his book being called for.

Even the Buddhist theory has been thoroughly worked out by a writer who sees in the sculptured monumental stones of the north of Scotland, especially the Kinnellar Standing Stone in Aberdeenshire, the representation of the Buddhist Triad—the spirit, the matter, and the *tertium quid* resulting from the combination of the two former. These phenomena are ascribed to the presence in Northern Britain of enthusiastic Buddhist missionaries, engrafting the mysteries of their doctrine upon the Druidical religion which they there found established.¹

These fantastic fallacies may not, however, be without a peculiar value of their own, or their own proper place in the universal fitness of things. They may serve to dispel some of the dulness which is supposed to pervade the atmosphere of semi-serious social soirées, or to stimulate the languid literature of the meetings of country book-societies. In a scientific point of view, they have no value whatever.

We by no means deny the influence of the East upon Europe in very early times, or ignore the existence of forms of thought, superstitious observances, or religious rites in Northern and Western Europe, yet traceable to Phœnicia or Egypt. But this influence dates from a period which, though remote, yet lies close upon, if not altogether within, the boundaries of history : it has followed in the footsteps of the conqueror, or been imported with the wares of the merchant. It is because these foreign elements have been impressed upon or mixed up with a larger indigenous matrix that we are enabled to recognise their existence. But Mr. Lysons's theory is that Britain was, at a time so incapable of appreciation as the period of the non-metalliferous tumuli, first and originally colonized by the Celtic race, and that these Celts were Assyrians or a cognate people, who brought with them, from some part of the country called in modern maps Asia Minor, a Hebrew or Hebraic language, which we now call Celtic, and the worship of the deities mentioned in the Hebrew Scriptures, and in the

¹ Thomas A. Wyse, M.D., in *Trans. of the Royal Soc. of Edinburgh*, vol. xxi.

Assyrian and Babylonian inscriptions. It is melancholy to observe such a waste of time and industry as Mr. Lysons' book presents, and to see a man who has really done good service to archæology, in recording the facts which have come under his notice in the course of his investigations, led away from the right path by such a mere *ignis fatuus* as the Hebrew origin of the ancient Britons. That part of his book which describes the tumulus, the excavation of which he himself directed, is well worthy of perusal.

It may also serve to demonstrate, if any further proof were required, that the etymological road will lead us anywhere we please except to a knowledge of the builders of the sepulchral tumuli of the stone age in Britain. It starts from an artificial platform arbitrarily erected by its constructors, and terminates abruptly in a quagmire of conjectures. The vitality inherent in names of places is no doubt very strong, but its strength may be very much over-estimated. All such names in Britain which are not of Saxon origin appear to be Celtic; but we are not to jump to the conclusion that Celtic names date from the age of the non-metalliferous tumuli. In this matter we are dealing with unstratified masses of time which bear some resemblance to geological time computations. When this island first makes its appearance within the circle of history, some portions of it appear to have been occupied by two branches of the Celtic race, one of which at least had passed over from the shores of the neighbouring continent. Long before that time, the century before the Christian era, the stone age of Britain had passed away. Gold, perhaps silver, certainly bronze and iron, had been introduced into the island by foreign commerce. There is no reason to believe, there is certainly not a shadow of proof, that the builders of the long-barrows (in which flint instruments only are found) belonged to the Celtic race. If the statement of Dr. Thurnam be well founded, the craniological evidence separates in a marked manner the builders of the long-barrows from the builders of the round sepulchral tumuli. The difference in what may be called the architectural character of these two classes of tumuli is, no doubt, strongly pronounced, and indicates a marked difference between them in the idea and feelings relating to the disposal of their dead. Nor is there any evidence at present available to connect either class of these tumuli with the stone monuments, whether circles or irregular groups of stones, or these again with the Celts. If we may judge from the names which the Celtic inhabitants of these countries have given to their monuments, they neither had nor have any genuine traditions relating to them. They call them by names merely descriptive of the object—*cor*, or circle; *menhir*, tall stone; *penlvan*, lofty pillar; *cromlech*, round grave-stone, &c. We cannot expect ever to be able to connect these monuments with

history, because the earliest history of the countries in which they exist knows nothing of them, and is silent concerning them. But we can, as to some of these monuments, deal with them independently of history, and create for them among themselves a special relative chronology.

The simple monuments of unhewn stone, unconnected with other traces of human art, or with other objects indicative of the degree at which their constructors had arrived in the perception of artificial wants, and the power of providing for the satisfaction of such wants, may continue to evade, as they have hitherto defied, all reasonable interpretation of their relative age, their uses, or the degree of civilization to which their builders may have attained. For certainly the rudest monument, if it be only the exponent of a religious idea, may possibly be compatible with a far higher degree of cultivation than it would seem *per se* to indicate. But when man has left behind him the indices of his condition, the objects which enable us to measure the progress he had made in the conquest of the material world, we obtain not only the means of estimating, to some extent, his moral and social condition, but a means of comparison as between contemporary races, or, assuming the condition of progress, between the different positions marked on the scale of time by the same race. Confined within reasonable limits, such speculations are fraught with the deepest interest, though they bear with them the danger of leading us beyond the limits within which alone there is safety—the domain of facts.

All speculations regarding a pre-Celtic population of Northern and Western Europe are, in the present state of our knowledge, speculations only. In Gaul and in the Britannic islands, which, in the historic period, appear as the home of the Celtic race, we have as yet found no philological evidence of their having been mixed up as conquerors, or otherwise with another race. In the Spanish peninsula, it is true, the researches of William von Humboldt demonstrated long ago that the Celts of Spain had divided the peninsula with another and apparently an earlier-seated race, the Iberians, whose language still lives in the Basque of North-western Spain, and is conclusively shown to have been at one period far more extensively distributed over the land. All the facts which have been gathered from the investigation of the monuments of the non-metalliferous races tend to show that these succumbed to the superior intelligence, possibly the superior physical strength, and certainly to the superior war equipments of the warrior race who opposed the dagger and the javelin of bronze to the stone mallet and the flint-topped arrow of the earlier inhabitants of Europe. Whether these may be considered to have been a Celtic race is a question still *sub judice*. We may be quite certain that the people whom they overwhelmed had not brought with them

from Phœnicia the arts of Tubal Cain, even if they inherited the spirit of Lamech. The true business of the archæologist and ethnologist, or, indeed, we may say, of the latter, since his science is the science of the races of man, and all that man has done, or said, or thought in any age, and under all varieties of circumstances, comes within the domain of ethnology; his business in this special department is to collect and record the constantly accumulating facts brought to light by the rapidly increasing body of earnest and scientific explorers.

Much has already been done, and is still doing, in this direction, both in England and on the continent of Europe, as well as in America. The comparatively recent discoveries in the ancient bone caverns and the sites of the lake-dwellings have awakened a deep interest and called forth a special literature, aided by all the resources of modern learning.

We may reasonably hope that the time is not far distant when the collection of recorded facts will be sufficiently numerous, and sufficiently connected, to admit of a scientific generalization and classification; then this branch of ethnology will pass out of the hands of expounders of riddles and assume the importance and dignity of a science. Δ

MEMOIRS READ BEFORE THE ANTHROPOLOGICAL SOCIETY OF LONDON.¹

THIS is a well-printed octavo of goodly bulk; for, independent of plates—the great majority representations, in all imaginable positions, of grinning human brain-cases—it runs to the length of 529 pages. Quality, however, does not always keep pace with bulk—a fact of which the reader may judge for himself, if he be not disposed to adopt the views which we shall give in the following brief examination.

By far the best paper in the Memoirs (it would have been fresher had it not been a republication) is the first in number—"On the Negro's Place in Nature," by James Hunt, Doctor of Philosophy, and President of the Anthropological Society. It is a diligent compilation of facts confined to the Negroes of Africa, by one who has never seen a Negro out of England. As there are many Negroes besides those of Africa—such, for example, as the Negro of Madagascar, equal in stature to the African, but otherwise materially differing from him; the Negro of

¹ *Memoirs read before the Anthropological Society of London*, 1863-4. Trübner, 1865.

New Guinea, not less than four inches short of the stature of the African standard; and the Negro of the Andamans, by a whole foot short of the African standard;—one would like to know which of these is meant by the author, seeing that all of them are as much entitled to the appellation of “Negro” as the black children of Africa themselves, since they have, one and all, black skins, oblique faces, thick lips, flat noses, and woolly hair. The Essay is rather carelessly and inartificially put together, for the notes equal, if they do not even exceed, in quantity the text—an arrangement productive of distraction and embarrassment to the most pertinacious reader. The paper runs to the length of 64 pages; and we therefore wonder greatly at the patient endurance of the audience which listened to the reading of it.

It is the skull or brain-case that is chiefly relied on for determining the Negro’s Place in Nature; and we have, accordingly, many measurements of its very eccentric forms, in no doubt correctly technical terms, framed for the occasion—such as antero-posterior diameters, vertical diameters, transverse diameters, horizontal circumference, transverse bi-auricular curves, distance in a straight line from the meatus auditorius to nasal eminence, and the like. While we know that no two skulls, even of the same race of man, were ever alike any more than any two faces, and that the skull of a Negro may often be mistaken for that of an European, the skull of an Arab for that of a Hindoo, of a Chinese for that of a Samoide, and of a Malay for that of a Japanese, we can place no confidence in the measurement of skulls, however skilfully and scientifically described; and hence we rise from the perusal of Dr. Hunt’s long essay just as much at a loss for the Negro’s Place in Nature as before we read it. We can well understand what is meant by man’s place in creation in relation to the lower animals, but the Negro’s place, as distinguished from the rest of mankind, is not comprehensible.

The second paper in the volume is by Dr. Peacock, “On the Weight of the Negro Brain;” and it is a judicious one. A common belief was entertained that the brain of the Negro was greatly lighter and smaller than that of the European: actual experiment has shown that, upon the whole, the brain of the Negro is quite as large as that of the European or of any of the other races of man. It is the impalpable, occult quality and not the bulk of the brain that makes the difference between one brain and another; and that is what anatomy will never detect. We have not the least doubt but that Shakespeare and Newton had cotemporaries, blockheads, even idiots, with bigger brains than theirs. Milton had a small symmetrical head, and of necessity a small brain. Dr. Johnson had a large and not a symmetrical head, and of consequence a large brain. Both were men of genius, but the greater genius belonged to him who had the smallest

brain. There are exhibited in town just now a French and a Chinese giant with brains to a certainty far bulkier than the brain of Sir John Herschel; but it does not follow that the intellects of these abnormal beings are superior to those of the great philosopher. If, then, the size of the brain be no test of the difference between individuals of the same race of man, how can we expect that it should be so between the different races of man?

The next paper in the *Memoirs* is by Mr. Bollaert, a well-known American traveller: it is entitled "On the Past and Present Population of the New World." For the past population of America, or of America before its discovery, there are no materials at all, and for its present population very imperfect ones. "It is very difficult," observes Mr. Bollaert, "to say what was the amount of population in America before its discovery by Europeans; but we do know for certain that it has very much diminished." We agree entirely with the first part of this proposition, but wholly dissent from the last, firmly believing that the present inhabitants of America are more numerous than when Columbus first saw it. Mr. Bollaert, although admitting that there are no data, makes the population of undiscovered America—and he gives details—one hundred millions, and that of present America no more than about seventy-four millions—showing a decline of twenty-six millions.

To overthrow this theory of the ancient populousness of America seems to us to be a matter of no great difficulty. The feeble civilizations of America were confined to a very small part of its vast surface—the elevated plateaux and valleys of a part of the Andes. The vast majority of the continent was in possession of nomadic hunters or fishermen, always savages, and often cannibals. In such a state of society density of population is an impossibility; and we might just as well ascribe it to savage America, three hundred and sixty years ago, as we should to savage Australia or savage New Zealand, seventy years ago. This, however, is exactly what the author of this paper does. Thus he gives to the country now occupied by the Anglo-Saxon race an indigenous population before the discovery of no less than twenty millions. Even supposing these extravagant figures to be trustworthy, it turns out that the modern population exceeds it by no less than fourteen millions; and here at least Mr. Bollaert's theory is upset by his own facts. Mr. Bollaert, however, has given us, from his own personal experience, much information respecting the present population of tropical America far more valuable than his theory.

The sixth paper is on "Viti and its Inhabitants," by W. T. Prichard, Esq. This is the result of a fifteen years' residence in what is popularly called the Fiji group of the South Sea Islands; but it gives also an

account of the two nearest groups to them—the Tongan, or Friendly Islands, and the Samoan, or Navigator Islands. The Fijis are inhabited by a Negro-like people, and the two last by fairer men, in mind and body a superior race, which has been called the Polynesian, for want of a more appropriate name. So long as Mr. Prichard confines himself to what he has seen with his own eyes he is both graphic and accurate; and we know no better account than his of the persons and manners of the two races of man referred to. But the moment he begins to theorize he falls into the profound blundering of a mere innocent. Thus he traces the origin of the Fijians to New Guinea, and that of the Tongans and Samoans to the Malays of the Indian Archipelago, simply because the first are Negroes, and the last for reasons not easy to guess, for he himself describes the Samoans and Tongans as men of "Herculean stature," and we know the Malays, from whom they are here imagined to have sprung, to be by full the fourth part of a foot short of the stature of their imagined descendants. The delusion of tracing the fairer races of the Polynesian Islands to the Malays seems founded on the slender evidence of a few Malay words having been detected in their languages; but, unluckily for this argument, they are equally found in the Fiji and other Negro languages. The truth is that there is no more ground for ascribing a foreign origin to the inhabitants of the isles of the Pacific than to the black swans, kangaroos, and ornithorhynchuses of Australia. It is very indiscreet in Mr. Prichard to dogmatize, as he does, on topics beyond his researches.

The next paper, and a subsequent one, are both entitled "On the Two Principal Forms of Ancient British and Gaulish Skulls," and it is by Dr. Thurnam, who has written much on such subjects. Some ethnologists have of late found that they have made a grand discovery in classifying all human skulls into "broad" and "long," and find a special value in giving to these most vague and indefinite qualities Greek terms, calling them respectively "brachycephalic" and "dolichocephalic." The human skull is of a roundish irregular form, and to say that one skull is more long, and another more broad, amounts to a vagueness of language which conveys no distinct idea of form at all. This is admitted by the parties using such terms, when they add to them such words as "sub-brachycephalic" and "sub-dolichocephalic," that is, "somewhat long" and "somewhat broad." On the faith of ill-defined forms, Dr. Thurnham finds that the ancient inhabitants of Britain consisted of two distinct races of man, "Longheads" and "Shortheads." We must suppose the worthy author of the papers himself to be descended from the "Longheads," although his adoption of the new-fangled terms is no satisfactory proof of it.

Mr. Bollaert is a very voluminous contributor to the present volume of

Memoirs, for in all, he has contributed fifty-eight parts in a hundred of the whole. The two papers of his to which we now refer are on the "Astronomy of the Red Man," and the "Palæography of America." We are not ourselves competent judges, but we cannot help thinking that such a subject would better become the Antiquarian and Astronomical than the Anthropological Society.

The eighth paper is by Dr. Joseph Barnard Davis, and it is on the "Neanderthal Skull; its Peculiar Conformation Explained Anatomically." If any man living knows all the uses to which skulls, ancient and modern, can be put, excepting drinking strong ale out of them, it is Mr. Davis; for he has lived many years in a kind of domestic Golgotha—described, delineated, and engraved the skulls of all the races of man; so that for whatever a skull may be worth Dr. Davis is the best authority. When the now famous Neanderthal skull—or, rather, the fragment of a skull—was first discovered, the advocates of the Darwinian theory of transmutation hoped they had found the missing link between man and monkey; but, unluckily for the hypothesis, the fragment in question turns out to be abnormal, or, in other words, part of a malconformed human cranium, very possibly of an unhappy idiot. Dr. Davis proves this anatomically; and so the missing link is still a desideratum.

The ninth paper of the volume gives a description of a tomb of ehloride slates found in the island of Unst, one of the Shetlands, in which were found many human bones and some very rude pottery; but, as this grave has since been more carefully examined, and as an account of it will, no doubt, be published in a future volume of the Memoirs, we defer our notice until the appearance of such publication. The paper is illustrated by some engravings of skulls found in the rude tomb, which look very much like any other skulls.

The tenth paper is entitled "Notes on Certain Matters connected with the Dahomans, by Richard F. Burton." This Richard Burton is the renowned traveller of that name, the man of Mecca and Medina, of the Mormons and the Salt Lake, of Eastern and of Western Africa, the noted orientalist, and who, in the quality of her Majesty's Consul, is exercising his skill in Brazil on the agglomerative tongues of America. The Captain's sketch of the geography of Central and Tropical Africa is neat and graphic, but his account of the flagrantly gross manners of the barbarians of Africa would be more decorously expressed in a dead than in a living tongue; and, as the author is an accomplished classic, he would have no difficulty in accomplishing this much needed task.

The next paper is called "Notes on Certain Anthropological Matters respecting the South-sea Islanders (Samoans)," by W. P. Prichard. The

author is the same Mr. Prichard already referred to. The manners of the Samoans, in so far as regards the relation of the sexes, are of the grossest ; and the author thinks himself justified in describing them in corresponding language. He tells us, for example, in the most naked terms, how the chastity of a noble virgin is determined, the chief of the tribe being the high-priest of the foul ceremony, and the witnesses one thousand spectators of both sexes. The description would be impure for an anatomical theatre and is unbecoming at the meetings of a popular society. We suggest to the Council of the Anthropological Society that a dead language would be the most decent medium for such statements, and that Hebrew, or Sanskrit, or Zend would be preferable to Latin or Greek.

After Mr. Prichard's paper comes one written in the same tone. It is entitled "On the Phallic Worship of India, by Edward Sellon, Esq." "It has been," says Mr. Sellon, "the practice of missionaries to burk the question of the Linga-puja from a mistaken and false delicacy. It is trusted, however, that the members of the Anthropological Society will not be offended if, in the consideration of this subject, a spade is called a spade, and not a rake or a hoe." And, acting on this maxim, the author forthwith proceeds "to discuss the emblem, its appearance, nature, and the attributes." We must, however, remind the Fellows of the Anthropological Society that the naked language here recommended to them is, in this advanced period of the nineteenth century, considered far more indecent and infinitely more vulgar than cursing and swearing, and that, to avoid being sent to Coventry, they will do well to abstain from it. The ordinary reader will be surprised to hear that the emblem referred to is so unlike what it is intended to represent, that an explanation is necessary to make intelligible what it is meant for. "It may, indeed, be affirmed," says Mr. Sellon, "that there is scarcely a temple in India which has not its Lingam." This is wide of the fact. No such emblem is to be seen in any of the numerous temples of Vishnu, the Hindoo Preserver, for it is exclusively confined to the temples of Siwa, or the Destroyer. It is totally unknown to the worship of Buddha, which originated among the Hindoos ; and this embraces all the Buddhist temples from Ceylon to Japan.

Mr. Sellon comes to the sweeping and rather extravagant conclusion that the worship of the Lingam or Phallus was of much universality, and had probably one and the same origin. He finds it not only in Greece and Italy, but among the Egyptians, the Assyrians, and even the Mexicans. Not only this—Noah and his Ark represent it. And, he adds, "There would also now appear good ground for believing that the Ark of the Covenant, held so sacred by the Jews, contained neither more nor less than a Phallus, the Ark being the type of the Argha or yoni." We are not our-

selves believers enough for all this, but we congratulate Mr. Sellon on the facility of his belief. The personification of the powers of generation in their grossest and most obtrusive shape is likely enough to have been an early form of worship among barbarians, and continued by long habit even after these barbarians had become somewhat civilized; but we cannot see the dimmest shade of evidence for concluding that such a form of religion sprang from any one central source.

This, too, we presume, is the first time that "the Ark of the Covenant" has been represented as the obscene emblem of a worship borrowed from the Hindus. The Ark was an oblong square case, which contained nothing but two stone tablets with the autograph writing of the law. In the absence of any graven image it was the emblem of the Spirit of the sole God of the Jews; and here it is imagined the distinct object of the manifold idolatry of India. The intense irrationality of such delirious notions is calculated to provoke wonderment.

We have next a paper "On the History of Anthropology," by T. Bendyshe, M.A., Fellow of King's College, Cambridge. We thus give his titles at full length, seeing that he is the only contributor to the volume that has a title of sufficient distinction to be known to the general public. Anthropology is described in this essay, as it has often been by its followers before, as the "Science of Man," a definition which conveys to understandings not Anthropological a notion as indeterminate as would "Science of Ass or of Horse," or "Science of Cock or Bull." It is either one branch of a knowledge which is not defined, or it is every branch of knowledge whatsoever. Let us suppose it, however, to be a branch or department of natural history. In this sense, and whether called Anthropology or by the somewhat less lumbering names of Ethnography or Ethnology, its history ought to be told in a very few sentences, for it began to be cultivated as a special branch of knowledge not more than forty years ago, some of its first cultivators being still living. Although to be tolerated, perhaps, in a Cambridge scholar, it would seem a labour of unprofitable supererogation to go back for the history of a branch of science to the time of Pythagoras of Samos, or about 2300 years before that science existed. Upon the ancient, the middle age, and even the more modern history, of the non-extant science, the learned Fellow of King's College has wasted some five-and-twenty octavo pages. The remarks of Mr. Bendyshe appear to have been the source of the main topic of the last annual address of the President of the Anthropologists; and, as we have sufficiently disposed of that performance in a previous number of this journal, it is unnecessary to insist further on a subject so utterly aberrant and unfruitful.

Our examination of the volume of Memoirs does not leave us deeply impressed with a sense of the powers of the contributors, or the skill and judgment of the editors. The vessel is over-loaded with dead weight, more likely to swamp it than to speed its course. A dozen pages would have embraced all that is useful in it. It is, however, but a first attempt, and future attempts may prove more successful, provided always that dead weight be thrown overboard.

THE ZAMBESI AND ITS TRIBUTARIES.¹

WE have before us here, in a beautiful octavo, the results of the travels of two hardy Scotsmen, the brothers Livingstone, now well known to the world by the fame of the elder, the only Briton, and probably, indeed, the only European, who has ever crossed and recrossed the continent of broad and barbarous Africa. David Livingstone is not only a bold, intrepid, and observant traveller, but a skilful astronomical observer; and his brother is a good naturalist. Both, as we are told in the preface to the work, were accompanied by Dr. Kirk, an accomplished botanist, geologist, and naturalist, whose work on the natural history of Eastern and Central Africa, in course of preparation, we shall be glad to see; for we hold Dr. Kirk to be among the best and most faithful of all those who have made Africa a special study.

The present work is far more carefully written and far better arranged than Dr. Livingstone's former book, and contains also far more information. The most valuable result of the six years spent by Dr. Livingstone and his friends in their laborious investigations consists in their geographical discoveries. They have ascertained that Central Africa is an elevated tableland, with a low, alluvial fringe east and west; a fact foretold by the sagacity of Murchison. The great interior plateau contains great lakes, all the discovery of our countrymen; and two of them the Shivva and Nyassa of Dr. Livingstone. Besides the discovery of these two lakes, Dr. Livingstone and his friends have surveyed the Zambesi, and its tributaries the Shivé and the Rovumd, altogether greatly extending the geography of Eastern Africa.

We shall here give a sketch of the geography of that portion of Africa which is near the scene of our traveller's investigations, but only as pre-

¹ *Narrative of an Expedition to the Zambesi and its Tributaries.* By DAVID and CHARLES LIVINGSTONE. John Murray. 1865.

liminary to the few remarks which we shall have to offer on our own special department, Ethnology. Eastern Africa bears little resemblance to Europe, to Asia, or to the two Americas; and it is even inferior to Western Africa, for it wants its navigable rivers and its harbours; besides being much farther away from the civilized world of Europe, for it can only be reached by doubling the Cape of Storms, or crossing an isthmus and the whole length of the Red Sea. One side of an impenetrated block of solid land, its naked coast wants the great islands and peninsulas of Europe and the splendid archipelagoes of Asia and America. Its human native inhabitants are all Negroes, respecting whom we shall presently have some observations to make, and are few in number; but its wild animals are countless, and many of them monsters in size, both of land and water being; and to them at least the region is eminently fruitful. This is the favourite land of the elephant, the rhinoceros, the zebra, the Cape buffalo, the hyena, the lion, the hippopotamus, and the crocodile; and, whether as varieties or species, they are all peculiar to Africa. In passing a favourite resort of elephants, a marsh called after them, Dr. Livingstone on one occasion counted eight hundred; and on another occasion he says, "In passing the Elephant Marsh we saw nine large herds of elephants: they sometimes formed a line two miles long."

Not one of the indigenous animals of Africa is amenable to domestication, with the exception of the elephant; and this the Negro has not had the skill to tame, although it has been done by all the races of Asia of whose country the elephant is a denizen, and although the animal would be eminently valuable in a roadless region well suited to it by climate and food. The Negroes of Eastern Africa have domesticated no quadrupeds but the dog, the hog, and the goat; and, like the Mexicans, they are without beast of draught or burden. The ox, the horse, and the camel are absent; and, indeed, in some parts of the country a poisonous fly, the tse-tse, is fatal to them and precludes their presence.

As to the cultivated plants of the interior of Africa visited by our travellers, here is the account which they give of them:—"The native produce cultivated in this the centre of the continent consists of mapira (*Holcus sorghum*), meshivera (*Holcus peronisetum*), maize, ground-nuts, underground beans (*Vand scia*), cucumbers, melons, pumpkins, sweet-reed (*Holcus sacharatum*), sweet potatoes, tobacco, cotton, and Indian hemp, or bango; but wheat, rice, and yams they have never seen. Sugar-cane, bananas, and cassava grow in the Barotse valley. They have no garden vegetables, nor any of the fruits found near the sea, such as mangoes and oranges, which have been introduced into Africa from other countries."

But even all of the productions here enumerated are not indigenous products of Africa, if by the word "native" indigenous be meant. Thus maize and tobacco are strangers, beyond all doubt; and so most probably are cotton, the sugar-cane, the banana or musa, rice, and even the cassava, or manioc. No people is absolutely stationary; and even the Negroes of Eastern and Central Africa must once have been greater barbarians than we now find them—before the advent among them of Hindus, Arabs, and Portuguese. It is with some of the domesticated animals as with cultivated plants. The rock-pigeon, in a few places, has been introduced, already tamed; and the common fowl has unquestionably been introduced from India, for in Africa it is nowhere found in the wild state. But the gallin, abundant in Central Africa, has not been domesticated by the Negroes, although it was so two thousand years ago by the Numidians of the Mediterranean coast of Africa.

As to the progress made by the Negroes of Central and Eastern Africa, they are even now ignorant of ploughs, harrows, and wheel-carriages; and, indeed, they have no animal to draw them. The Negroes manufacture pottery with the hand, but have not yet reached to the use of the wheel known immemorially to all the nations of Asia,—even to those of the second and third orders of civilization. From a remote time they appear to have acquired the arts of smelting iron and copper ores, discoveries to which they seem to us to have been led by the excellence and purity of the native ores of both, malachite being that for the copper. "Here," says the narrative, "at every third or fourth village, we see a kiln-looking structure, about six feet high by two and a half or three feet diameter. It is a clay fire-hardened furnace for smelting iron. No flux is used, whether the specular iron, the yellow hematite, or magnetic iron ore is fused, and yet capital iron is produced." Native iron is so good that the natives declare English iron to be "rotten" in comparison, and specimens of African hoes were pronounced at Birmingham to be nearly equal to the best Swedish iron. The savages of the interior of Borneo do the very same thing. They manufacture, by the same simple means, not only good iron, but excellent steel; but the men of the same race—the Malaysians—do not continue savages like the Negroes, for, as in the example of the Javanese, we find them advanced to a highly respectable rank in civilization. Over the Mexicans and Peruvians the Negroes of Africa have had the great advantage of possessing iron, and of reducing copper ore to metal; and yet no Negro nation has reached the civilization which these American people had attained when Cortez and Pizarro and their companions first saw them. Like the nations of America, the Negroes are unacquainted with the art of extracting the sap of palms, to be used as a beverage, or to make sugar from; and still more extra-

ordinary is it that they are ignorant of the use of oil, of which they have an abundance, for giving light. "The idea of using oil for light," says the narrative, "never seems to have entered the African mind. . . . It would be considered a piece of the most wasteful extravagance to burn the oil they obtain from the castor-oil bean and other seeds, and also from certain fish, or, in fact, to do anything with it but anoint their heads and bodies." This may be considered to stand next in stupidity to Montesquieu's savage, who cuts down the tree to get at the fruit.

Dr. Livingstone propounds an extraordinary theory to account for the invention of the arts, which he fancies perhaps may be Scriptural, although we know of no Scripture authority for it, but which, at all events, is assuredly neither logical nor philosophical. "Since," says he, "we find that men who already possess a knowledge of the arts needed by even the lowest savages are swept off the earth when reduced to a dependence on wild roots and fruits alone, it is nearly certain that if they ever had been in what is called a state of nature, from being so much less fitted for supporting and taking care of themselves than the brutes, they could not have lived long enough to have even attained the ordinary state of savages. They could not have survived for a sufficient period to invent anything such as we who are not savages, and know how to make the egg stand on its end, think that ~~we~~ easily could have invented. The existence, therefore, of the various instruments in use among the Africans and other partially civilized people indicates the communication of instruction at some period, from some being superior to man himself." In proof of this singular hypothesis, the Doctor adduces the similarity of form in hammers, tongs, hoes, axes, &c., among rude nations both of Asia and America, as well as of Africa, forgetting that, for the fabrication of all these, iron must have been first discovered, and that in America it was never discovered at all. The truth is that the Doctor is greatly puzzled; and, as the Greeks and Trojans of Homer called in similar cases for the intervention of their gods, he calls for the intervention of a miracle. It is certain, from his taking to this course, that the learned Doctor's reading on such subjects is not extensive. The Andaman islanders are stark naked, and had no cutting instruments, except those made of stone, until wrecked European vessels furnished them with iron, while they fed almost exclusively on shell-fish. The Fuegians are naked, with the exception of a patch of skin, and also feed on shell-fish, and they had lived for ages ignorant of iron. The great miracle was the creation of man with the capacity to accomplish the great achievements to which we have referred. It was a deity, beyond doubt, that performed this miracle, and all the rest followed, from the fabrication of a hoe to the manufacture of a steam-engine.

The authors of the work have come to the conclusion that the African Negroes of the eastern coast and of Central Africa are a different race of man from those of the west side of the continent. The evidence adduced, however, is not satisfactory, although we think there may exist such shades of distinction as divide in Europe the Latin, the Teuton, and the Slavonian races, or in India one section of Hindoos from another. The authors are describing an interview which they had with a chief called Chinasamba, and take this occasion for pointing out the differences which exist between the Negroes of the eastern and western side of Africa. "He" (Chinasamba), say they, "has a Jewish cast of countenance, or rather the ancient Assyrian face as seen in the monuments brought to the British Museum by Mr. Layard. This form of face is very common in this country, and leads to the belief that the true type of the Negro is not that met on the West Coast, from which most people have derived their ideas of the African. The majority of heads here are as well shaped as those depicted in the ancient Assyrian and Egyptian monuments. The lips are more like those of Europeans than of the West Coast Negroes. They may be described as full, but not unpleasantly so, and more heads may be prolonged a little backwards, like that of Julius Cæsar, than among ourselves. A large ring in one ear reminds one of the Egyptian monuments, and so do some of the fashions of dressing the hair. The legs do not, as a rule, present the high calves which are supposed to distinguish the African race; nor do we meet with what is called the lash-heel any oftener than among the civilized races of Europe. We have noticed a peculiar length of thigh-bone in several instances, but have not had an opportunity of ascertaining whether it is as common as the long arm, which formerly gave so much advantage in the use of the broadsword among ourselves." Some part of this may no doubt be true, but some is assuredly fanciful, such as the likeness of the brainless East Coast Negro head to the head of Julius Cæsar, as well as the likeness of the Negro in question to an ancient Egyptian, from the fact that both were content with a single earring instead of the ordinary pair of the rest of mankind.

The authors of the work come to a conclusion that the Negro is equal in all respects to the other races of man; a proposition which we dispute, for the obvious reason that it is contrary to all we know of his history. "In reference," say they, "to the status of the African among the nations of the earth, we have seen nothing to justify the notion that they are of a different 'breed' or 'species' from the most civilized. The African is a man, with every attribute of humankind. Centuries of barbarism have had the same deteriorating effects on Africans as Prichard on certain of Irish, who were driven, some generations back, to the hills of Ulster and Connaught. And these depressing influences have had such moral and

physical influences on some tribes that ages probably will be required to undo what ages have done."

Now all this is refuted in the very pages of their own book. By their own account the Negroes have suffered, at least, no physical degradation; for those of the east side of the continent are described by them as resembling the subjects of Nebuchadnezzar and the Pharaohs,—even as having heads like Julius Cæsar. But, besides this, all the Irish referred to in their quotation were not driven into Ulster and Connaught, and they are at this day, one and all, even including the band driven into Ulster and Connaught, physically one of the most athletic people in the world, and morally and intellectually superior to what they were when the eastern side of Africa was first seen, 367 years ago.

The book, of which we have now given a rapid sketch, contains far more than enough of missionary enterprises which have perished, leaving "not a wrack behind," and too much also about African slavery and slave-trade crimes, for which we have done quite sufficient for our own purgation; but, apart from this surplusage, it contains much new and valuable information, and its perusal is incumbent on all who desire to be acquainted with a large portion of our earth's surface.

BRITISH ASSOCIATION.

CIVILISATION AND CEREBRAL DEVELOPMENT.

By R. DUNN, Esq., F.R.C.S., Vice-President of the Ethnological Society.¹

AFTER premising the postulates—first, that the brain is the material organ of the mind; secondly, that there exists between it and the cranium such a correspondence in size and form that its varying proportions may, within certain well-known limits, be correctly ascertained by external observation; and, thirdly, that the genus *homo* is one, all its different portions having in common the essential constituent elements of a moral, religious, and intellectual nature, and waiving the question of the monogenesis or polygenesis of man,—Mr. Dunn asserted that from all historic times there have existed aboriginal and typical races of men, widely differing and easily distinguishable by marked physical characters, such as the Negroes, Mongols, the Red-men of America, and the fair races of Europe. There had also existed from the remotest times, besides the rude and savage herds of hunters and fishers, two forms or phases of civilisation, the *nomadic*, or pastoral, and the *agricultural*; the former,

¹ Read on Saturday, Sept. 9th, 1865.

essentially stationary in character, the latter eminently *progressive*. Among the purely nomadic races Mr. Dunn affirmed that there exists, as might be expected, an *uniform sameness* and *characteristic fixity* in the shape of the head, strikingly in contrast with the disparity which is seen to prevail among the agricultural races and cultivated Europeans; and this diversity he attributed to increased mental activity, and the consequent nervous development to which it gave rise. He dwelt on the importance of viewing in contrast the typical crania of the Negroes or Australian savages, the Mongolian Nomades, and the cultivated Europeans, maintaining that, as the skull is the outward measure and index of the brain's development within, we are able fairly to estimate the relative size and comparative development of its three great divisions, the anterior, middle, and posterior lobes; nay, among the typical races to recognise *distinctive characters* impressed and stamped upon their varying crania, as indisputable evidence of degradation and elevation of type. In proof of this, he adverted to the *prognathous* type as one of *degradation*, and remarked that wherever ignorance and brutality, destitution and squalor, have for a long time existed, this prognathous type is invariably found to prevail.

Proceeding from the comparison of the skulls to that of the brains, he was free, he said, to confess that, though all physiological psychologists were agreed that the hemispherical ganglia were the sole and exclusive seat of intellectual actions and volitional power, yet that to be able duly to interpret and appreciate the structural differences which we meet with in the brains of the typical races demands a greater knowledge of the functions of these different cerebral parts than we had yet attained. Still he contended that we are not without some definite knowledge of the functions of the cerebral lobes as psychical instruments, and recognising with Gall, Spurzheim, Combe, and Carus the tripartite division of the brain, the anterior, middle, and posterior, as being respectively the seats of the intellectual, of the personal or individual, and of the social and affectional attributes of the mind, he also recognised with Gratiolet three stages or planes of development in these: (1) the inferior or lowest, the *basilar* and *superciliary*; (2) the middle or *median frontal*; and (3) the highest, the *coronal* or *superior frontal*, the sole and exclusive prerogative of man. Upon the respective development of these lobes and planes he considered that the various differences of mankind essentially depended, and agreed with the results arrived at by Gratiolet, from extended observations, that fulness of development and complexity of structure in the anterior lobes of the brain are sure indications of elevation of type, while simplicity of structure, and symmetry of shape and arrangement in the cerebral folds,

of Geography and Ethnology, he had no direct concern with the proceedings of Section D; while it *was* a part of his duty to notice the papers spoken of by Mr. Blake, as they were read in the section.

The business of the evening then proceeded, and a paper was read by the Secretary

ON THE DARIEN INDIANS. BY DR. CULLEN.¹

The Isthmus of Darien, which is separated from the Isthmus of Panama by a line drawn from Cape San Blas to the mouth of Chepo River, is covered throughout with dense forest and is traversed by the Cordillera, which runs parallel to the Atlantic coast at from three to six miles' distance from it. The Atlantic coast of Darien extends from Boca Tarena, the most western mouth of the Atrato, to Cape San Blas—a distance of 157 miles. This coast, and the islets off it, for about twenty miles towards the Pacific, are inhabited by an independent tribe called the Darien, San Blas, or Mandinga Indians. They call themselves Tule, a word signifying "people." Their small settlements, which are scattered at immense distances from each other, are situated on the sea-shore, on the banks of the rivers which fall into the Atlantic, and on the upper branches of those which run into the Pacific. They have always maintained their independence, and do not permit any official or citizen of the republic of New Granada (now styled the United States of Columbia) to land on their territory; and they neither go themselves to the Pacific side of the isthmus, nor allow any of the natives of the Granadian villages on that side to cross over to the Atlantic.

The Darien Indians are a handsome race, of low stature, but stoutly built, with the copper-coloured skin, straight, coarse black hair, and other characteristics of Red Indians. They live very peaceably together, are honest, cleanly, and industrious, occupying themselves in fishing, hunting, and cultivating plantains, cassava, cocoa (*Theobroma cacao*), and a little sugar, cotton, and tobacco. They hunt deer, peccaries and sahinós, two species of wild hogs, wild turkeys and monkeys, which they barbecue or dry over smoke. They are very expert at throwing the harpoon, and striking fish, manati, and turtle. They are good sailors, and some of them occasionally make voyages to Jamaica or the United States. They are accustomed to the use of fire-arms, but their principal weapons are spears and arrows. They have the woorali or curare poison, which they get from the Indians of Choco, and call *inà* and *corord*. The arrows, which are very slender, and only a foot in length, have one end smeared with woorali,

¹ This paper was one of those read at the Birmingham meeting.

which has the appearance of extract of opium. When about to be used, a little silk cotton is wrapped round the other end, and the dart, which is of ebony wood, is blown through a long tube called *borokera*. The deadly effect of a mere scratch is almost instantaneous. They never tell their names, and when one is asked, "Tki pe nookka?" (What's your name?) he replies, "Nookka chuli" (I have no name). They are, however, very fond of adopting English or Spanish names, and their principal traders have assumed the names of Shepherd, Robinson, William Denis, Jack Bragg, John Bull, Tom Dadd, Paterson, &c. They put great faith in the divining powers of their *leles* or priests, who advise them in all important matters, and pretend to foretell events. Before delivering their oracles those priests have their powwows, in which, like the *pieimans* of the Caribsee and Arrawauks of Guiana, and the Sookies of the Mosquito territory, they howl, mutter incantations, and invoke all sorts of terrible animals, real and fabulous. They have a great dread of the small-pox, which is one of their reasons for not allowing foreigners to enter their country; but their principal reason is the idea they have that God made the country for them alone.

Their government is purely patriarchal, the oldest and most experienced man in each settlement being accounted chief by general consent, and universally looked up to and obeyed as such. The last chief of all the Indians was Calogwa, of Carti, in San Blas Bay, who was upwards of 100 years of age when he died a few years ago.

They are very friendly to the English and Americans, but, nevertheless, will not permit them to land on the coast. When a vessel anchors it is boarded by the Indians, who bring off their produce and do not allow the captain or crew to land.

They will take no money in exchange for any of their commodities; nor will they sell gold-dust, the Indians of the interior being strictly forbidden to bring down any to the coast. The trade is carried on by some schooners and sloops from Jamaica, Curaçoa, and Carthagenia.

It is not unusual to meet with Albinos among them. At Perdon Island, off Cape San Blas, Dr. Cullen saw three children by the same father and mother, two of whom were Albinos, with the usual peculiarities of hair, skin, and eyes.

The language is very euphonious. The women wear gold nose-rings, so large that they hang down below their mouths, and must be raised up when they eat. Their necks, wrists, ankles, knees, and hips are adorned with glass beads, strings of coral, gold trinkets, and such like ornaments. On grand occasions they put on a cotton dress, and the men attire themselves in shirts and trousers, but generally the entire dress of

either sex consists of a narrow ayuca, or lap, called *panequiri*, round the loins.

In all the doctor's intercourse with this interesting tribe he was treated with great kindness and hospitality, although the old men were strongly opposed to his project of cutting a canal across the isthmus; and in urging the justice of dealing with the race in all future transactions in a spirit of conciliation and friendship, he expresses his confidence that if so dealt with they will offer no opposition to the construction of the canal.

The second paper read was entitled "Notes on the Manners and Customs of the Natives of the West Coast of Africa, as seen at Little Popo, Bight of Benin." By Captain Leveson Wildman, R.N. Want of space obliges us to defer our notice of this paper till our next Number.

At the meeting of November 21st, the President in the chair, the paper of the evening was "*On the True Assignment of the Bronze Weapons, &c., supposed to indicate a Bronze Age in Western and Northern Europe.*" By Thomas Wright, M.A., F.S.A., &c. This paper will be given *extenso* in our next Number, and we reserve till then our notice of the discussion to which it gave rise. We shall only now observe that the paper was a most vigorous and learned protest against the theory of the three ages of archæology first put forth by the Northern Antiquarians, and that it elicited one of the most interesting and strictly scientific discussions which we have heard for some time, the principal speaker being Sir John Lubbock, who had to defend the opinions expressed on this subject in his recent work on prehistoric times; and this he did in a very able manner. Mr. Burke, Mr. Crawford, and Mr. Nash, Honorary Secretary, successively took part in the discussion, and Sir Roderick Murchison spoke on the geological portion of the subject. Some suggestions were also made by Mr. Prideaux.

ANTHROPOLOGICAL SOCIETY OF LONDON.

THE first meeting of the session was held on the 14th inst., Dr. James Hunt, President, in the chair. After the routine proceedings, including the reading of a long list of members elected since the vacation, and a report by Mr. Carter Blake on the anthropological proceedings at the

Birmingham meeting of the British Association, the President vacated the chair, in order to read his paper "On the Archaic Anthropology of the Zetland Isles."

The author of the paper gave an account of a recent visit made by him to the Zetland Islands, with the object of investigating the antiquarian relics reported to exist in those islands. He first visited Unst, the most northerly of the group; but found the chief objects of interest had been previously explored. He proceeded to examine the other islands, and described the results of an exploration of several large tumuli, which were chiefly composed of burnt stones. In one of these a stone hammer was found, of a unique pattern. In the interior of most of these tumuli there were found ruins of some building. In one case the structure was nearly complete, and resembled what is known as the "beehive" house. In another tumulus there was found a large upright stone with a hole in the centre, the first instance, the author thought, of such a stone being found within a tumulus. He gave a detailed account of the discovery of an underground structure, from which were dug a large number of rough stone implements, resembling in form and size those which have been found in Pressigny le Grand, in France, and the uses of which have occasioned considerable discussion. These implements—which are not of flint, as are those of Pressigny le Grand—were exhibited to the Society, and the author brought forward the various theories current as to the objects of these and similar stone implements, at the same time stating his opinion that any definite conclusion as to the purposes or age of these objects could not be formed from the present data, and considered the subject as one of great importance, and deserving of further investigation by the Society. The author of the paper mentioned by name the various gentlemen to whom he was indebted for acts of courtesy whilst prosecuting his investigations, and mentioned especially the liberal donation of the Earl of Zetland to assist in carrying out the researches which have been made under the auspices of the Anthropological Society.

The next paper was a "Report on the Zetland Anthropological Exploration." By Ralph Tate, Esq., F.G.S., F.A.S.L.

The author described the excavations conducted under his superintendence at the Muckle Heog, Isle of Unst, Shetland, which afforded remains of many human individuals, urns formed of steatite, and bones of domestic animals, birds, and fish, with numerous shells. He described some skeletons found by him in the Island of Uyea. Two adult skeletons were lying on a bed of fish-bones.¹

¹ We have heard this paper highly spoken of, but no further account of it has been sent to us.—ED.

The next meeting of the Society will take place on December 5, when the following papers will be read:—

John Beddoe, Esq., M.D., M.A., F.A.S.L., "On the Evidence of Phenomena in the West of England to the Permanence of Anthropological Types."

Dr. R. S. Charnock, F.S.A., F.R.G.S., Treas. A.S.L., "On Cannibalism in Europe."

RECEIVED.

Bulletins de la Société d'Anthropologie de Paris. Tome Sixième, 1er et 2e Fascicules, Janvier à Juin, 1865. Paris: Victor Masson et Fils, 1865.

La Linguistique et l'Anthropologie. Par M. LE DR. P. BROCA. Paris: Victor Masson, 1862.

Sur les Caractères des Crânes Basques. Par M. LE DR. P. BROCA. Paris: Victor Masson, 1863.

Sur les Origines des Races d'Europe. Par M. LE DR. P. BROCA, Secrétaire Général de la Société d'Anthropologie de Paris. Paris: Victor Masson, 1864.

Moral Freedom reconciled with Causation. By HENRY TRAVIS, M.D. Longman, 1865.

Visit to the Familistery or Workman's Home of M. Godin-Lemaire at Guise. By TITO PAGLIARDINI. London: G. A. Hutchison, 10, White Friars Street, Fleet Street.

The Edinburgh Evening Courant, November 14th.

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THE
ETHNOLOGICAL JOURNAL.

JANUARY, 1866.

THE CELTS: WHO WERE THEY?¹

WHAT do you mean by "the Celts"? Such was the question proposed about a year and a half ago by M. Broca to his colleagues of the Anthropological Society of Paris. At first sight the answer seems ready and easy enough, but, upon consideration, becomes more and more difficult, and turns out to be, in fact, one of the most troublesome and unmanageable questions ever proposed to an ethnologist. Yet it is highly desirable that the students of history, archæology, and, if you will, anthropology, should come to some definite understanding as to the meaning and limitation of a term constantly recurring in all inquiries into the origin and character of the races who peopled Europe in the pre-historic time. There are, as M. Broca observes, four different varieties of so-called Celts, who may or may not have any real connection between them. These are the Celts of history, the Celts of philology, the Celts of archæology, and the Celts of craniology. As to the first of these, the historical testimony is vague, inconsistent, and even contradictory. The Greek writers seem to have applied the name Celts, or its equivalent, Galatæ, to the (to them) barbarous tribes of the unknown barbarous north and west of Europe—Scythians on the north-east and Celts on the north-west, of whom little more was known than that they were ferocious plunderers and unmitigated barbarians. Their home was sometimes placed at the foot of the Pyrenees, at the sources of the Danube, on the banks of the Po, or on the shores of the Northern Sea. From their centre, wherever situate, they had migrated, at various epochs, in vast bands of marauders; had pillaged Delphi,

¹ *Qu'est que les Celtes?* Par M. le Dr. P. Broca, Société d'Anthropologie de Paris, Séance du 2 juin, 1864.

plundered the cities of Etruria, defeated consular armies, and sacked the Eternal City itself. Finally, a horde of these same barbarians had established themselves by force of arms in the heart of Asia Minor, and given to their kingdom a name derived from their own, Galatia. When, in their turn, the Roman legions penetrated into Gaul, they found a portion, at least, of that vast territory peopled by a race whom they knew in Northern Italy by the name of Gauls, but who, either by themselves or their neighbours, were called Celtæ. Here, then, at least, we meet with historical Celts; but here, also, a new set of difficulties begin. The Celtæ of Cæsar are expressly limited, in a geographical sense, to the country between the Seine and the Marne, the Garonne and the Western Ocean, and to some extent, though how far no two writers are agreed, they differed from the Belgæ located to the north of the two first-mentioned rivers. If we abide by the statement of Cæsar—and no one had better opportunities, or was more capable of judging the matter as it stood in his day—the Belgæ were not called Celtæ, either by themselves or the surrounding populations. Whether the two nations or confederations were really closely related in blood is a question which belongs to a different part of the inquiry; and philology, or, as M. Broca prefers to term it, “la linguistique,” steps in, and seeks, by the instrumentality of language, to determine the extent and relations of the Celtic race.

Passing over the minor difficulties which present themselves in this branch of the inquiry, philology has demonstrated that the people of Gaul (always excepting the Aquitani south of the Garonne) spoke a language which, though necessarily embracing a variety of dialects, was, in effect, the same throughout all Gaul, Celtic and Belgian, and was closely connected with the language of the Britannic Isles; and this language—for, as M. Broca has observed, it was necessary to give it a name—has been called the Celtic. It is true that the language of the Celtæ of Cæsar, as far as it is known from the so-called Gaulish inscriptions, appears to be an aberrant group of the Celtic family of languages, and that, in retaining this name for the whole family of related tongues, philologists have proceeded less on linguistic considerations than on those of convenience, the name having originally been preferred owing to the greater historical celebrity of the name of Celts. This name, once consecrated by usage, says M. Broca, all the people who have spoken, and who still speak, these languages have been designated by the linguists as Celts. We do not see what other better or more convenient designation than Celts could be given to the various peoples who spoke or speak the language to which it has been agreed to give the name of Celtic. But M. Broca is an anthropologist *pur sang*, and is rather given to treat *les linguistes* as sons of Zeruiah, with

whom he has nothing to do ; and he seems inclined to charge them with being the cause that persons unaccustomed to distinguish between the notion of language and that of race have adopted the conclusion that, before the two epochs of invasion, Roman and Germanic, all the populations of Gaul and the Britannic Isles belonged to one and the same race—the Celtic. Personally, indeed, we share M. Broca's opinions on this point, and have perused with pleasure and profit the many able arguments with which he has on various occasions supported his views ; but, as we are now on a question of evidence, we may inquire what is the evidence on which we are bound to assume that, for Gaul before the Roman and for Britain before the Germanic conquest, the peoples of these countries belonged not to one but to two or more distinct races. The evidence, says M. Broca, is of two kinds—archæological and craniological ; and this brings us to the Celts of archæology.

There was a time, some twenty years since, when every monument of unhewn stones in Gaul or Britain, stone circle, cromlech, menhir, or dolmen, was attributed to the historical Celts, and particularly to their supposed priesthood, the Druids. The belief still lingers in England, and would still find supporters among some antiquated antiquarians. But investigations, which M. Broca still calls archæological, a term quite as unmeaning as Celtic, have shown that the megalithic monuments of those countries belong for the most part, if not entirely, to the age of stone ; that the builders of these monuments were, as far as our present knowledge carries us, the primitive inhabitants of Europe ; that later in time than these are monuments erected by a people acquainted with the use of bronze implements and weapons, and later again by a people possessed of instruments of iron.

We pass rapidly over these facts, on which so much may be said, but which are now tolerably familiar to all who are interested in ethnological inquiries, to ask what is there in the results of these investigations to assure us that the people of the stone and those of the bronze period of Britain and Gaul were not of one and the same race ? What is there, in fact, to discredit that assumption of the philologists—always supposing it to be rightly attributed to them—or to show that they are wrong in giving the common name of Celtic to all the pre-Roman inhabitants of those countries ? It is true that the remains of the ruined habitations of the lake-dwellers in some parts of Europe show that the ingenious builders of those water-dwellings had in vain opposed the flint arrow and the stone hammer to the bronze javelin and dagger of their conquerors—a more highly civilized and better armed nation than themselves. But this does not prove that the bronze-bearing conquerors were of a different race.

from the stone-weaponed victims of the war. The examples of modern savage life, to say nothing of Greece and Rome, show that in closely allied tribes, actually of the same blood, the possession of new death-dealing arms obtained from European traders by the tribes more favourably placed for sea-borne commerce has been followed by the conquest and almost extermination of the tribes of the same race not possessed of those formidable equipments. Or what is to assure us that the presence of bronze implements in the sepulchral barrows of Britain is not an indication of a gradual progress in civilization, of new ideas, new acquirements, gradually introduced by peaceful commercial intercourse with the shores of Gaul, if not by the famous, if doubtful, keels of Tyre or Carthage? Assuming, however, that the bronze-using peoples of the sepulchral barrows were a different race from those who possessed only implements of stone, and of a later date in Europe than the latter, the archæologists have considered that this bronze-using race must have been that of the Celts; and these M. Broca calls the Celts of archæology. This application of the term differs only from that employed by the philologists in this, that while the philological Celts are confined to the west of Europe, those of archæology have been followed step by step into regions much more closely approximating to the supposed original home of the race in Asia.

But, as we have before observed, no evidence of a difference of race between the stone and bronze using peoples has yet been produced; and this we have to look for, and, according to M. Broca and other eminent ethnologists, we shall find by aid of craniology. This portion of the question has been very ably investigated by many of our countrymen, and, amongst others, by our eminent colleague Dr. Thurnam, who, in an admirable essay lately published in the *Memoirs of the Anthropological Society of London*, has not only enunciated his own views with remarkable force and clearness, but has enabled us to appreciate all the bearings of the question as viewed in different lights by the most distinguished ethnologists of Europe. We must refer the reader to the essay itself for the full development of the argument, and will content ourselves for the present with a brief recapitulation of the points bearing on the subject now before us. Dr. Thurnam maintains that the crania obtained from the megalithic barrows of the stone age in Britain differ from the crania obtained from the sepulchres of the bronze-using people of the same country by characters amounting to evidence of a difference in race—the crania of the stone period being dolichocephalic, those of the bronze period brachycephalic. That the brachycephalic skull-form of the bronze period in Britain was introduced into this island from Gaul, and was the type of the Celtic skull—at least, that of the dominant race—Dr. Thurnam considers to be

proved. "There are," he says, "two distinct cranial types from the barrows, one, at least, of which must be Celtic. To assume that both are Celtic can scarcely be reconciled with the idea of permanence of type (if such be admitted) or with that of ethnic unity. The brachycephalic and sub-brachycephalic skulls from the round barrows must be regarded as those of the bronze-using Celts, and the dolichocephalic skulls from the chambered long barrows as those of a pre-Celtic stone-using people. Such seems to have been the order of succession of these two races in Britain, and such, it is believed, was also the order of their succession in Gaul." With regard to the origin and affinities of this pre-Celtic people, Dr. Thurnam suggests that "altogether the doctrine of an Iberian or Ibero-Phœnician origin of a very early, perhaps the earliest, population of at least part of Britain, though not as yet proved, derives much additional weight from the comparison here instituted of the skulls of the British dolichocephali of the stone period with those of the Basques." We purposely pass over all the debateable points in Dr. Thurnam's argument, and his conflict of opinion with many eminent English and Continental ethnologists on this very point of the priority in time of the dolichocephalous race in Europe, in order to come to the question with which we are now more particularly concerned. That the order of succession of these races in Northern Britain should be the reverse of that which prevails for the neighbouring Scandinavia is sufficiently embarrassing, but that the same retroversion of this order should exist between South-western Britain and North-western Gaul is more embarrassing still. It is true that some of the Northern ethnologists are beginning to cast doubt on the authority of Retzius on this subject, and to declare that the men of the stone age in Scandinavia were, like those of Britain, dolichocephalic.

But, setting aside for the moment the consideration of these difficulties, and granting, as perhaps we may, that, so far as the sepulchral tumuli inform us, the introduction of bronze into Britain was synchronous with the introduction of the brachycephalous race, and that these are a different race from the men of the stone period, how does craniology show that the former were Celts? Dr. Thurnam argues that "if the conical and bell-shaped barrows of South Wilts and Dorset, and especially those of the great Stonehenge necropolis, in the centre of the region of the Belgæ of Ptolemy, be not those of the very people who fought against the legions under Plautus and Vespasian, then we must conclude that their tombs are yet to seek." But here, in addition to the fact that no two persons can be found to agree on the type of the Celtic skull, we get confronted with one of those time questions, one of those chronological difficulties which appear to be, and to be likely to remain, irresolvable and insuperable—Does the intro-

duction of bronze into Britain date from a period so comparatively modern that its introduction can be attributed to the historical Celts?

Every result of recent investigation tends to throw back the commencement of the stone period—that is, the first dawn of human conquest over nature—to a period incalculably remote. Are we to bring down its termination to a date appreciable by the chronometer of history? For Dr. Thurnam's craniological Celts—that is, the brachycephalous bronze-using race of Britain—are the Celts of history; and M. Broca's ingenious distinctions are reduced to the condition of distinctions without a difference. It appears to us, moreover, that the Celts of craniology are precisely the Celts of archæology, whose origin is hidden in the obscurity of a remote antiquity, and that the only Celts who stand forth with a real substantial self-existence, capable of being connected with other cognate races, are the Celts of philology, for of them, at least, we know the Indo-European, or, if it be preferred, the Asiatic affinities.

But this knowledge does not suffice to enable us to answer M. Broca's question in the sense in which he puts it. The whole question of the relation of race to language remains as open as before. A race, it is said, may borrow a language, or take it like the small-pox, by inoculation or by contagion, or have it thrust upon it like a creed—at the point of the sword. M. Broca's own views on this matter seem to partake of a mixture of the inoculation and sword-point theories. M. Broca's writings are, however, always pleasant to read and profitable to ponder, and we hope shortly to return to a consideration of some of the many deeply interesting questions on which he has expressed his always valuable opinion.

D. W. N.

ON THE MYTHIC ASPECTS OF ANCIENT AND MEDIEVAL CHRONOLOGY.

No. II.

(Continued from page 211.)

IN a previous paper I have briefly set forth a few of the more important facts in the history of zodiacal symbolism as revealed by mythonomical research; but some further elucidations are still necessary before we can advantageously enter upon the immediate subject of this inquiry.

As already observed, the two fundamental ideas which underlie all mythic formations, in the technical sense in which the term is here under-

stood, are the natural year and an imaginary cycle, or great year, which always adopts the divisions and symbolism of the ordinary year; and, as these have greatly varied at different epochs, we find a similar variety in the events and adjustments of the cycle.

Of these two leading ideas the first is rarely, if ever, to be reached otherwise than by inference; it forms no part of the external imagery of a fable: but the second is often a prominent portion of this imagery, especially in many forms of the cosmical and national myths. In a great variety of fables, however, neither cycle nor year are at all alluded to, nor could the zodiacal bearings of these fables have ever been suspected by any one not previously acquainted with the leading deductions of the new science. To the mythonomist, however, they yield their meaning as readily as any other portion of his materials: first, from the mere peculiarity of their structure; secondly, from the fact that their imagery and personages are often familiar to him in other combinations; and, thirdly, because, even when this is not the case, they present to him images which directly reveal zodiacal meanings. Hence he often picks out of an ordinary fairy-tale a beautiful and perfectly-preserved symbolism, or finds a mere nursery legend ringing the changes upon an elaborate, though long-forgotten zodiac. But, of course, this class of materials only became available when the foundations of mythonomy had been firmly laid and a considerable progress made in the erection of the superstructure itself.

The fact that the mythonomist has to proceed analytically and inductively, in order to reach the meaning of a fable, might seem to give to his conclusions a questionable aspect; and no doubt there are cases in which he may easily deceive himself, as there are in all analytical and inductive sciences: but, whatever may have been the difficulties of this subject heretofore—and they were sufficiently great to seem at first sight all but insuperable—these difficulties no longer exist for a large portion of the subject. Mythonomy is now an organized science, and would be at once acknowledged as such were its facts and laws fully set forth and accessible to the student; but time and circumstances have as yet prevented this being done to a sufficient extent; for the summary already published¹ is too brief and too sparingly illustrated by facts to meet the requirements of the case. But the present difficulties of the science do not so much concern the proper interpretation or sequence of fables as the bearings of the science generally on the history of the past. Here we need the widest basis of induction which circumstances will permit, as well as the most

¹ *Principles of Mythonomy, or the Origin and Development of Zodiacal Symbolism. Ethnological Journal* (Quarterly Number), 1854.

careful balancing of the evidence ; but even in this department many very important results have already been attained.

If, then, the mythonomist is necessarily an analyst, he has no need of working hypothetically, nor any special temptations to hasty inference ; on the contrary, his science is sufficiently advanced and organized to supply him with rules of guidance and tests of accuracy well calculated to check impatience and necessitate careful criticism. More than this no science can do for either the reasoner or the observer.

From this view of the subject it results that mythology presents us a solid substratum of fact, on which the play of fancy, the necessities of figurative language, the vicissitudes of time, and the credulity of early humanity have raised a superstructure of wild, though sometimes also of grand and even beautiful extravagance. For the most part the substance has passed out of memory, and the extravagance alone has remained ; for the substance was not calculated to make any deep impression on the mind after it had ceased to be a current usage ; but with the superstructure it was far otherwise. A marvellous and thrilling legend, simple in form, striking in imagery, and capable of expression in rude picture-writing, might defy for untold ages the vicissitudes of time. Once accepted by credulity as a veritable record of the past, once carried into the hallowed circle of religious belief, and it might survive the rudest shocks which humanity has had to endure, and still linger in the memory of men even when increased knowledge and a higher mental status had smiled away its sacredness. To such fables as these the poet will cling long after the philosopher has rejected them, and even when poesy itself has wearied of their repetition they may become immortal in the nursery.

Mythology, then, like geology, reveals its meaning by inference only ; but just as every vestige of organic matter may have vanished from a fossil, while yet the solid rock retains each form and line of that which it has supplanted, so the fable which speaks not of cycle, nor zodiac, nor year, nor season, nor symbol, has yet derived from these its every form and feature, and needs only to be cut through by a skilled hand to give back its perished import.

Thus treated, mythic tradition at once lays aside its triviality and extravagance, and opens to our view a mine of antiquarian wealth, everywhere pregnant with meaning, everywhere ready to throw light upon the great past ; and light, too, which could come from no other source. We cannot, in fact, any longer dispense with the serious study of this subject : it is scarcely of less antiquarian importance than that of monuments and languages. Indeed, we may truly say that Monuments, Languages, Myths, and the Laws of Race are the four corner-stones of that edifice of genuine history which

hypothetical research has so vainly sought to restore, but which no spell less powerful than the magic of science can ever again evoke.

Even at present the scientific treatment of mythology dissipates innumerable illusions by giving us their origin and their history, while at the same time it reveals shadows of forgotten greatness which must guide us in due time to the imposing realities behind them. To the ethnologist, in particular, this study ought to offer special attractions. If, on the one hand, it exhibits in striking forms the follies, the credulities, the mental aberrations which might naturally be expected to mark the infancy of the world, it displays, on the other, the play of fancy, the curious ingenuity, the lofty aspiration, and the underlying stratum of substantial utility and clear common sense which redeem these follies, and show that the infancy of which it speaks is an infancy of high promise, the infancy of races capable of attaining in due time an advanced civilization, and which already had fully entered on the career of improvement. Mythology nowhere speaks of the savage or of the barbarian; it has no relation to their wants, but springs from the necessities of higher forms of life. When the barbarian gives us a myth, he but restores that which his ancestors had received, but could not have created, that which they may have defaced, but were powerless to originate, since they had neither the soil nor the seed from which alone a myth could spring, in the sense in which we are here concerned with the term.

Thus mythology teaches us that in ancient times, as well as at the present day, we must clearly distinguish between capacity and acquisition, between mental power and acquired knowledge, and not conclude, as we have too often done, that a rude structure necessarily implies a barbarian builder, when it may only mean a very remote period. In this way mythology flashes an unexpected light on many important ranges of monuments, and thus enables us to distinguish, in times far beyond the stretch of our accepted chronologies, the unequivocal traces of great events—empire, conquest, commerce, colonization.

One thing it especially shows: it shows us that in remote times, as at the present day, the different sections of humanity were broadly distinct in mind, and that they have very unequally contributed to the progress of the world; and it further shows that one section in particular has displayed, again and again, in the ages of the past, the inherent supremacy which marks it in the present: for mythology is not a collection of independent growths, but a tree which, though its branches have overshadowed the earth, has yet but a common trunk and a single root; and these, strange as the statement may sound in the presence of our older speculations, are firmly planted in the soil of ancient Europe.

Strange as it may seem, myths and monuments alike concur in pointing to Europe as the great centre of intellectual life, the great focus of activity, change, and progress in the past as in the present. They show us this Europe again and again pouring its energies over every great region of the earth, conquering, civilizing, colonizing. Even when empire has settled for ages in other regions, and left the remote West in comparative obscurity and repose, it still was Europe which, mediately or immediately, had lighted up the fires of progress, and been the chief agent in fanning its flames and directing its course.

In a word, it is not geology alone which has to change the whole current of our thoughts relatively to the early deeds of man. Monumental and mythic history have also revelations to make not less startling nor less important.

In the previous paper we have seen how easily and naturally the cosmic legend has grown out of the simple arrangements of the early calendar; and a glance at the gorgeous fables of Brahmanical and Buddhist India, or the more graceful creations of the European mind, will show how infinitely suggestive these materials have been, and how readily they have ministered to every requirement of fancy, of reverence, or of superstition. Here we see them worked up into a grandly elaborate, though wildly fantastic cosmology; there they supply events for the history of some divine or quasi-historic hero, the representative of the solar god in some actual or perished creed: thus, the Avatars of Vishnu, the labours of Hercules, the amours of Jupiter, or the exploits of the Scandinavian Thor. In other cases we have the four regions personified as ruling powers of the universe, three of them being beneficent and harmonious, and the other evil and antagonistic, according to the requirements of the Secondary era. Thus the great trinities of India, Greece, and Scandinavia—Brahma, Vishnu, Siva, and the Dityas or Demons; Jupiter, Neptune, Pluto, and the Giants; Odin, Vili, Ve, and the Hrimthursar. While, in other cases, we have a family party consisting of Father, Mother, and Son, with an Uncle or Grand-uncle, or some other equivalent, representing the antagonistic fourth principle. Thus the Egyptian Osiris, Isis, Horus, and Typhon; the Grecian Ouranos, Ge, Chronos, and the Titans; the Italic Saturn, Rhea, Jupiter, and the same Titans; and the Roman legend of Numitor, Rhea Sylvia, Romulus, and Amulius. In these family myths the female element is often a virgin, the type of the purity and sacredness of fire; and in this case she is usually the daughter of the first personage of the triad, and the mother of the third, her

conception being either miraculous or the result of violence or of an unlawful amour.¹

In other cases the zodiacal regions took the form of cosmography, either applied to the entire universe or to particular countries. Of the former adaptation, the creeds of Brahminism and Buddhism furnish curious and imposing illustrations, while the territorial divisions of many ancient nations give us numerous specimens of the latter.

Finally, we see the many divisions of the late Tertiary zodiacs converted into dynasties of gods or kings, while the days, hours, or even minutes of their divisions furnish the materials of a chronology more or less extravagant, or more or less human-looking, according to the region of the myth and the credulity or criticism of its recipients. Before proceeding to the consideration of some of these chronologies, it may be well to allude briefly to two or three leading symbolisms on which, chiefly, they are based.

The Mexican symbolism of the four elements has already been spoken of, as also that of the four phases of the day, Morning, Noon, Evening, Night, and the four typical colours representing them, red, white, yellow, blue; together with the four corresponding metals, copper (ultimately brass), silver, gold, iron, which, in their cyclical sequence, suggested the important myth of the golden, silver, brazen, and iron ages. We may now briefly allude to another very curious and ancient symbolism which has also been preserved in Mexico, where important use was made of it in the arrangements of the year and cycle. This consists of four objects: *Tochtli*, a rabbit; *Acatl*, a cane; *Tecpatl*, a stone; and *Calli*, a house. As an animal which lives in the earth, which serves for human food, and which is wonderfully prolific, the rabbit is an appropriate symbol of Earth and Autumn. The cane or reed, as a water-plant, will represent Winter, the season of moisture; while *Tecpatl* was the stone arrow-head, and thus a type of Air and Spring; and *Calli*, as the place of fire, and probably the representative of the temple and shrine of the sacred fire, was the symbol of Summer. But, quite apart from these inferential assignations, it is expressly on record that *Tochtli* was dedicated to *Tecacayohua*, god of the Earth; *Acatl* to *Tlaloc*, god of Water; *Tecpatl* to *Quetzalcoatl*, god of Air; and *Calli* to *Xiuteuccli*, god of Fire.²

This symbolism, while immediately representing the four elements, may have also been intended to convey the additional idea of what might be termed the four kingdoms of nature, the Animal, the Vegetable, the Mineral,

¹ Various modifications and illustrations of this form of the myth, and of the triadic myths generally, are given in the *Principles of Mythonomy*, pp. 87—46.

² Gemelli Careri, *Giro del Mondo*, tom. vi. cap. vi. p. 40.

and the Divine, or the kingdom of the Gods; and, if so, it is a very curious specimen of these mythic adjustments; for, apart from some such chain of association, the symbols, while individually appropriate, are altogether incongruous as a group.

I especially allude to this symbolism, because this idea of the arrow has fixed upon the age of Air the associations of war and of all warlike instruments, while Calli has connected the house, the city, the temple, the tower, and the associations of religion generally, with the age of Fire.

A still more important and suggestive symbolism, and one which more especially belongs to the Secondary era, is that which represents the four divisions of the year by the four phases of life—Infancy, Youth, Maturity, and Old Age—pictorially expressed by a Child, a Youth or Maiden, a Mature Man, and an Old Man. In the cyclical sequence the Mature Man, as the type of Autumn and Earth, commences the series with the attribute of parentage; and in some forms of the myth, as already observed, the Maiden proceeds from him as his daughter, as the Child proceeds from her.

The sequence of Child, Youth, and Man, when represented in rude pictures, would naturally obtain distinctness by exaggerations of size rather than by accuracy of drawing; so that the child would appear as a small man, and the mature man as a giant. Hence we find in Hindu fable that the doctrine of progressive degeneracy is applied to the stature of man, as well as to his moral attributes; and that, while the men of the Satya yuga, or golden age, were of gigantic size, the race gradually declined in stature, till, towards the close of the Kali yuga, they became mere pigmies; so also in Buddhistic fable.

Out of this symbolism we can now see rising the entire mythology of giants on the one hand, and of pigmies, dwarfs, fairies, monkeys, and wonder-working children on the other; but in the Tertiary myths the order of excellence is inverted, the giant becomes a monster, and the types of air are sacred and dominant. This, however, is their character in the early Tertiary fables only, when the year and cycle begin at the winter solstice; for this sacredness and pre-eminence are subsequently lost by the transfer of the commencement of the year to the vernal equinox.

Another important symbolism, a natural sequence from the one just described, represents the four divisions of the year by the four typical parts of the body—the *mouth*, the *arm*, the *thigh*, and the *foot*. The mouth, the equivalent of the head, the beginning of the body, and also from its associations of breathing, speech, music, &c., represents Air and Spring; the arm, the symbol of strength and vigour, Summer; the thigh, from its relation to the stomach and the attributes of generation, Autumn and Earth; and the foot, the inferior portion of the body, Winter.

Each of these symbols, and especially the first, has suggested a profusion of derivative imagery ; but the connected series has also had important derivations, and some of these were carried out into practical life. Thus the arrangement of society into four hereditary classes—a supreme ruler, the typical parent of the nation ; a warrior aristocracy ; a body of hereditary teachers ; and, lastly, the common people, the servants or slaves of the superior orders. Unequivocal traces of this arrangement are discoverable in various ancient nations, and, in some instances, we find it in full integrity. Thus we have it in the *Tooitonga*, *Egi*, *Mataboolas*, and *Tooas*, of the island of Tonga, in the Pacific ; in the Monarch, Kings, Bards, and People of ancient Ireland ; and in the King, Chiefs, Scalds, and People of Scandinavia ; while in India we have the arrangement reversed to suit the requirements of the Tertiary era.¹

The four castes of India respectively spring from the mouth, the arm, the thigh, and the foot of the creator Brahma ; and they are the *Brahmins*, or teachers ; the *Kchatrya*, or military class ; the *Vaisya*, or husbandmen ; and the *Sudra*, or servile class—the first being pre-eminent in rank, taking precedence even of kings, who are only considered as members of the Kchatrya class. And here we have a curious instance of the power of superstition and the tyranny of opinion, which can thus entirely overrule in theory, and partly even in practice, the awe and reverence which supreme power so naturally inspires.

It is this symbolism also which has suggested the curious form of the ancient Egyptian zodiac, in which the Heavens are represented by an outstretched female figure, the arms and legs directed downwards, and the zodiacal symbols and constellations being assigned to the different regions of the body.

These explanations, brief and few as they are, will still be of material use in enabling us to appreciate the true nature of the chronological systems of antiquity, whether in their obviously mythic or in their quasi-historical aspects. In these systems the favourite numbers are 360 and 432 variously reduplicated or amplified. 360 was the number of days in the technical year in many ancient systems, the additional five days being added as a supplement or intercalation, as in Mexico and Egypt, and the quarter-day being either neglected, as in Egypt, and in the modern Mahomedan calendar, or variously provided for, as in Mexico, Italy, Greece, &c. ; but as to the origin of the number 432, no satisfactory explanation has yet presented itself to my mind. The preference given to the number 360 depended as much, perhaps, upon its extreme convenience as upon its relation to the length of the year ; for, except 7 and 11, every number,

¹ *Principles of Mythonomy*, p. 51, &c.

from 2 to 12 inclusive, divides it without a remainder, while its various simple multiples are nearly equally manageable.

In the more elaborate chronologies we are usually presented with a grand cycle embracing the entire duration of the universe; and this is subsequently divided into lesser cycles, based on various forms of the zodiacal legend. The great cycle often affects the triadic form of the Secondary myth, even when its actual sequence is given in Tertiary order; and of course there is always a fourth period implied, though its indications are occasionally but obscure. Hence the tendency to consider three times 360 (1080), or three times 432 (1296), as grand cycles is traceable in various instances even within the bounds of what is termed genuine history. The number 12 is also an important element, as it is the number of months in the year.

THE GREAT YEAR OF CHINA.

One of the great cycles of Chinese fable is exactly modelled on the machinery of the ordinary year of twelve months. It is a year of years, or 360 times 360 (129,600), and is divided into twelve great parts or months, each containing 10,800 years; thus again repeating the mystic triad, three times 360, as the whole number is three times 43,200. This cycle comprises the entire duration of the universe, commencing with the primal chaos, and concluding with the ultimate resolution of all things into the same condition. During its first three periods or great months—those represented by the signs of the *rat*, the *ox*, and the *tiger*—heaven, earth, and man are successively evolved. All things then follow their regular course up to the eleventh period, that of the *dog*, when the heavens gradually lose their force—heaven, in these speculations, being an equivalent for the supreme governing power of the universe. By the twelfth period, that of the *dog*, the energies of the universe are entirely exhausted; chaos returns, and continues for the whole of this period; after which, at the return of the *rat*, a new universe will arise and endure for ever.¹

In this case we have the intermediate period of the Secondary mythology represented by only one-twelfth of the cycle. In the triadic fables it should comprise one-fourth, as it does in the Buddhistic scheme; but in

¹ *Livres Sacrés de l'Orient* (Panthéon Littéraire): Introduction to the CHOU-KING, p. 20. The twelve signs of the Eastern zodiac are the *rat*, *ox*, *tiger*, *hare*, *dragon*, *serpent*, *horse*, *goat* (otherwise *sheep*), *ape*, *cock*, *dog*, and *hog*. The mythic affinities and contrasts between this zodiac and that of Europe, both as to the order of reading the signs and the general construction of the series, are very curious and interesting; but they would require too long an explanation to be here set forth.

other cases it is spoken of as a vague period, or as being equal in duration to that of the active, positive, or organic condition of nature.

This cycle is obviously a modern idea when compared with many other portions of the mythic history of the Celestial Empire; for it forms no part of the received chronology, much less does it regulate its subdivisions. These are subordinated to a cycle of ten great divisions termed KI, containing, according to some of the authorities, many millions of years.

Preceding these ten KI are three other great epochs; and first that of POUAN-KOU, the *Sovereign Man*, the divine artificer and Demiourgos, who lived in the time of the primal chaos and formed the universe. To him no chronology is assigned. After him came the TIEN-HOANG, the *August Family of Heaven*, a dynasty of thirteen kings; then the TI-HOANG, or *August Family of the Earth*, containing eleven kings. Each of these twenty-four kings reigned, according to some authorities, 18,000 years, and the whole, consequently, 432,000 years, while others make the sum of the two dynasties only 36,000 years, allowing 18,000 to each dynasty, and viewing the thirteen sovereigns in the one, and the eleven in the other, as respectively brothers and joint rulers. After these came the GIN-HOANG, or *August Family of Man*, with whom commence the ten KI.

These four categories, POUAN-KOU, TIEN-HOANG, TI-HOANG, and GIN-HOANG, give us a grand cycle formed of various subordinate ones, and based on the leading idea of the Secondary myths, though adapted to Tertiary requirements. It recognises three active periods, with an intermediate one, here represented by POUAN-KOU, whose era corresponds to the chaos of the previous cycle, to the night of Brahma in Hindu fable, and to the period of annihilation of the Buddhists. But whereas in many ranges of fable this intermediate period is one of exclusively evil associations, in others, on the contrary, and whether viewed as terminal or initial, all its associations are sacred. It is *Nirvana*, final beatitude, final rest, final annihilation, and freedom from vicissitude and suffering; or it is the great *before*, the time preceding creation, and during which the supreme being was alone, in repose and self-contemplation. In this sense it was, of course, without limits; hence no chronology is assigned to POUAN-KOU.

The Buddhistic system gives us similar periods; but, as it distinctly contemplates a ceaseless series of renovations and destructions, it views the intermediate period as terminal, and begins the series with the period of Creation, which corresponds to that of the TIEN-HOANG of the Chinese; then follows the stationary period; and, finally, that of destruction, corresponding to the GIN-HOANG and the ten KI of China, after which comes the period of annihilation.

The Brahmanical triad is the exact equivalent of the same ideas, only that the periods are here represented as personages, the supreme creator Brahm being the equivalent of POUAN-KOU and the time of negation; while the active Brahma represents the formative period; Vishnu, the preserver, the stationary period; and Siva, the destroyer, the period of destruction.

THE GREAT YEAR OF EGYPT.

But the entire Chinese scheme is in still more striking analogy with the chronological system of ancient Egypt, especially as presented in the document termed the "Old Chronicle."¹ According to this document, the series of the kings commences with Phtha, the generator, the divine architect, the Illephaistos and Vulcan of Greece and Italy, and who is often represented in the character of a dwarf, in which he is the equivalent of the child in the symbolism of the four phases of life, and therefore a type of air and spring, the first of the ages in the early Tertiary cycle. Hence he is by right the head of the dynasties and the first-born of the universe; and to him, as to POUAN-KOU, no chronology is assigned.

Next follows a period called the Reign of the Gods, beginning with Helios, the sun (summer), who reigned 30,000 years, and continuing with Chronos and the rest of the twelve gods. This period is the equivalent of the TIEN-HOANG, or August Family of Heaven, in the Chinese system. The next period comprises the reigns of eight demi-gods, heroes partly celestial and partly terrestrial, and exactly answers to the TI-HOANGO, or August Family of the Earth (autumn). Then comes the reign of the human kings in a long series of dynasties, the GIN-HOANG or August Family of Man, with the far larger series of dynasties comprised in the ten KI.

The great year of Egypt, according to the Old Chronicle, is a cycle of 36,525 years, and consists of 25 revolutions of the cynic or sothic cycle, which was that formed by the recession of the calendar and its festivals relatively to the natural year. The Egyptian calendar recognised the technical civil year as containing only 365 days, or rather as only containing 360 days, with five supplementary days, added as an intercalation, the

¹ In its actual condition, the numerical portion of the "Old Chronicle" seems hopelessly distorted and vitiated; yet, if we regard it from the mythological point of view, it becomes more manageable, and even, we think, admits of full restoration to its original self-consistency. It has recently been very ably and ingeniously handled by my friend Mr. Nash, in his *Pharaoh of the Exodus* (London, Russell Smith, 1863), a work in which the entire vexed question of Egyptian chronology has been re-examined in a very masterly manner, and with singular moderation and the most perfect fairness.

quarter-day not being allowed for by any intercalation. Hence all the festivals fell later and later by a day in four years, and thus gave origin to the celebrated sothic period of 1460 or 1461 years (365×4 , or $365\frac{1}{4} \times 4$) according as the period was regarded from the vague or the precise point of view. That just twenty-five of these cycles, rather than any other number, should be taken as the measure of the great year, would clearly be quite immaterial, even to an ancient Egyptian, from a purely historic point of view, but as a mythologist and systematist this number would powerfully recommend itself to his mind, since it would make the great year a direct image of the ordinary year, and do so by the distinct recognition of the two subordinate cycles of the nation, the sothic of 1461 years, and the lunar of twenty-five years. In 25 times 1461 years all the festivals of the calendar would return to the same days of the year and the same days of the moon, and make the great year consist of 365 *hundreds* of years and a quarter of a hundred years, as the ordinary year consisted of 365 *days* and a quarter of a day. What Egyptian systematizer could have had the heart to slight such a coincidence when once it had presented itself to his mind? That it must have presented itself it seems impossible to doubt in presence of the long array of exactly analogous adjustments which the materials under consideration disclose.

CYCLICAL SYSTEM OF THE BRAHMINS.

The chronological system of Brahminical India is curiously elaborate and precise, and based throughout on zodiacal forms: 360 ordinary years make a divine year, or year of the gods, and 12,000 divine years a *Maha yuga*, or great age, which thus contains 4,320,000 ordinary years, ten times the Chinese period of the TIEN-HOANG and TI-HOANG, and of the antediluvian period of ancient Chaldea. The *Maha yuga* is thus a great cycle, having twelve great months, each containing 360 hundred ordinary years, and further containing four lesser *yugas*, or ages; i.e., four great seasons: the *Krita* or *Satya*, the *Treta*, the *Dwapara*, and the *Kali*; in other words, the *fourth*, the *third*, the *second*, and the *black* age. These ages are read according to the sequence of the Primitive cycle, and are the exact counterparts, except in name, of the four metallic ages of Greece and Italy. The *Krita* is the golden age, the *Treta* the silver, the *Dwapara* the brazen, and the *Kali* the iron age.

The commentators explain these numerical designations by the fact that they represent the decreasing series exhibited by their chronology; for the *Krita* age contains 4800 divine years, the *Treta* 3600, the *Dwapara* 2400, and the *Kali* 1200, a doubly-descending series of 4, 3, 2, 1, and 8, 6, 4, 2; and, thus arranged, the *Kali yuga* contains one divine year, or 432,000

human years, the Dwapara two such years, the Treta three, and the Krita four; in all, 4,320,000 ordinary years.

But the *Maha yuga* is only an element in a still greater cycle—the *Kalpa*, or day of Brahma. This cycle—contains fourteen *Manwanteras*, or reigns of a *manu*; in other words, is based on a year of fourteen *moons*. Of this form of year Western Asia presents us, at least, with two other distinct illustrations, one of which will presently be noticed. It seems to be a simple duplication of the septenary zodiac, as the decenary was of the quinary, and, like it, would contain 364 days and one supplementary day, and have months of twenty-six days each, as the septenary would contain *suns*, or solar divisions of fifty-two days each; and it is, doubtless, from one or other of these arrangements that the familiar phrase “a year and a day,” so important in fairy lore, has taken its rise.

The Manwantera contains seventy-one *Maha yugas* and a fraction equal to the Satya or Krita yuga—that is, to 1,728,000 years of men; and at the close of these seventy-one *yugas* the world is drowned in a general deluge, and so continues during the whole of this supplementary period. After fourteen *Manwanteras* and a similar fraction, the *Kalpa* is completed, when the entire universe is destroyed, and Brahma sleeps for a night of equal duration with his day, and then awakes and creates the universe anew.¹

In these arrangements we have, properly speaking, but two complete cycles—the *Maha yuga*, with its four great seasons or ages; and the *Kalpa*, with its fourteen *Manwanteras*, or great lunar periods. All the other multiples and subdivisions of these periods are but an additional play of fancy, which add no new feature to the essential system. The Satya or Krita yuga is the golden age of Hindu fable; it is a time of virtue and happiness; and these, together with the duration of life and the stature of man, progressively decline in the course of the succeeding ages. “In the Krita age,” says the *Vishnu Purana*, “Vishnu, in the forms of Kapila and other inspired teachers, assiduous for the benefit of all creatures, imparts to them true wisdom. In the Treta age he restrains the wicked in the form of a universal monarch, and protects the three worlds. In the Dwapara age, in the person of Vedavyasa, he divides the one Veda into four, and distributes it into innumerable branches; and at the end of the Kali, or fourth age, he appears as Kalki, and re-establishes the iniquitous

¹ Davis, *Astronomy of the Hindus*, commenting on the system of the *Sūrya Sidhānta*, Asiatic Researches, vol. ii., pp. 230, &c. See also Sir William Jones, *Chronology of the Hindus*, Asiatic Researches, vol. ii., pp. 111, &c.; and *Institutes of Menu*, lib. i., v. 69—74; and Wilson, *Vishnu Purana*, lib. i., cap. iii.

in the paths of rectitude. In this manner the Universal Spirit preserves, creates, and, at last, destroys the world."¹

In this extract we have a clear allusion to the symbolism and social classification already alluded to—the period of divine wisdom, the paternal and sacred period; the *Kchatrya*, or warrior period, under a universal monarch; the period of the sacred books, and, consequently, of the teachers; and the period of degeneracy, in which, according to other traditions, the horse of Kalki stands with one *foot* raised, with which, at the close of the period, he will stamp upon the earth, when the world will be consumed by fire.

In the Maha yuga are also placed, though quite incongruously, the ten Avatars of Vishnu, which represent a zodiac of ten divisions, the Avatars forming a double sequence of five symbols each; and, according to the doctrine of decreasing excellence, four of these events occur in the Krita age, three in the Treta, two in the Dwapara, and one, that of Kalki, in the Kali. But the legends connected with these Avatars have no sort of relation to the character of the several ages; so that this is a purely arbitrary, and in no degree a mythic conjunction.

In the course of the Manwantera, seven Richis, certain secondary divinities—Indra, Menu, and the kings his sons—are created and perish; and at the end of the Kalpa a dissolution of the universe occurs, when the three worlds—Heaven, Earth, and Patala, or the Infernal regions—are destroyed by fire, after which immediately ensues a universal deluge, which swells to the dimensions of the three worlds; and on the bosom of this mighty flood Brahma sleeps for a night of the same duration as his day.

SYSTEM OF THE BUDDHISTS.

The chronology of the Buddhists is equally curious and systematic, and still more extravagant in the duration of its periods than that of the Brahmins.² It is based on a great cycle of four divisions, and presents, among other curious materials, the primitive or elemental legend, first modified into a Secondary form, and finally recast into the order of a late Tertiary myth. It is thus of peculiar value: first, as one of the links of connection between the traditions of the Old world and those of the New; secondly, as exhibiting the numerous changes of the old-world mythology,

¹ Wilson, *ib. Vishnu Purana*, lib. iii., cap. ii.

² I here particularly speak of this system as held by the Burmese, of which a most interesting account is given by Vincentius Sangermano, an Italian missionary, in his *Cosmographia Burmana*, a translation of which, by Mr. Tandy (Rome, 1833), was published at the expense of the Oriental Translation Fund. Extracts are also given by Buchanan in the *Asiatic Researches*, vol. vi., pp. 240, &c.

while all was comparatively stationary in the new ; and, thirdly, as throwing important light on many of the obscurities of Brahminical tradition, as well as on Western traditions generally ; for in many respects Buddhism is an older system than Brahminism. In its modern aspects, indeed, it acknowledges the pre-existence of Brahminism in a thousand ways ; yet it is equally clear to the mythonomist that it is based on a creed far older than Brahminism, either in its actual or Vedic forms, and that it is not without good grounds that many writers have suspected the pre-existence of such an older Buddhism. In fact, there are many important questions in Sanscrit literature on which mythonomy can even now speak decisively.

Thus, for instance, it has been too hastily assumed that the elaborate pantheon of modern India is for the most part of later origin than the Vedas, since only a small portion of it is recognised in the Vedas, while these books appear to furnish the basis on which this superstructure of mingled fancy and superstition was built up in comparatively late times. But in these late times it was impossible to create a myth of any sort, in the sense in which the term is used by the mythonomist. The key had been then lost for ages, and the necessities from which mythology had sprung had passed away for ever. All that the brightest fancy could then do was to adorn or modify existing materials, or to invent legends which might be very pleasant tales, but could not be myths, since a myth is an *organism*, a *growth*, which requires special circumstances of time and thought, and which can only be arbitrarily produced by one familiar with its formative laws. Hindu literature shows, it is true, a superabundance of purely fanciful workings ; but at the same time it gives us a body of mythology to which the Vedas are but things of yesterday—a mythology which forms an integral portion of the general stream of tradition, and is only Indian in its special dress and elaboration. The intrusive race which brought with it the purer and simpler faith of the Vedas found India an ancient centre of civilization, and in possession of elaborate and imposing creeds ; and, while keeping aloof from these creeds itself, it appears to have felt the necessity of tolerating the national faith. Time did the rest : the contact with superstition, the inevitable mingling of blood, toned down the conquerors, elevated the vanquished, and ultimately resulted in an amalgamated people and an amalgamated creed.

The Tertiary mythology is essentially distinguished from that of the two preceding eras by the fact that the cycle, in the sequence of its events, exactly coincides with the order of the seasons, instead of running in the reverse order. In fact, in all respects, except in the duration of its periods, it is an exact image of the ordinary year, having the same commencement, the same ending, the same divisions, and the same sequence in its events.

In other respects it often works with materials derived from the previous eras, both myths and symbolisms. With the myths it can only, of course, take a certain amount of liberty: with the symbolisms it often deals very freely. Sometimes it merely reads them in reverse order, making them the basis of an entirely new legend, or of some modified form of an older myth; at others, it retains the original sequence, but converts it into a certain degree of Tertiary suitability by the superaddition of new attributes to the symbols. This, of course, produces much incongruity, but its inconveniences are greatly diminished when its causes are known; and thus we are sometimes able to separate a story into two distinct strata, one implying a Primary or Secondary, and the other a Tertiary arrangement.

The Tertiary era has the advantage of presenting many successive and very distinct subordinate epochs: first, by successive changes in the time of commencing the year and cycle; and, secondly, by a progressive increase in the divisions of the zodiac, giving years and cycles of 5, 7, 8, 9, 10, 12, 14, and even more numerous divisions.

The first Tertiary cycle that can be spoken of with confidence is based on a year beginning at the winter solstice, and I term it the *Verno-solstitial* cycle. The transfer of the beginning of the year to the vernal equinox gave birth to the *Verno-equinoctial* cycle; and similarly was formed, in still later times, an *Autumno-solstitial* cycle; and there are also evidences of a cycle commencing at the autumnal equinox, and therefore termed *Hiberno-equinoctial*, but whether it belongs to the commencement or the close of the Tertiary era, or to both, has not yet been fully made out.

It is to the Autumno-solstitial arrangement that the fundamental myth of Bhuddistic cosmology belongs in its actual form. But the elements of the legend are far older than this. Its catastrophes are those of the Primitive myth, and, by the recognition of an intermediate period, it shows that it has had a Secondary form; and thus it mingles the associations of three widely-separated epochs—early Primitive, Secondary, and late Tertiary. It is a cycle of four ages, of equal but inconceivably vast duration: the first devoted to Creation, the second to the Stationary condition of things, the third to Destruction, and the fourth to Vacuity or Annihilation. It is, in fact, the Brahminical trinity represented as periods instead of as persons: Brahma, or the Creative period; Vishnu, or the Preservative period; and Siva, or the Destructive period;—in other terms, the periods of Earth, Water, and Air. Of Earth, from the associations of productiveness; of Water, as a type of Winter, the zodiacal place of Night, Sleep, Death, Old Age, and such like associations of a stationary character; and of Air, as the

place of the arrow, and hence of war and destruction, in many ranges of fable.

In accordance with these peculiar ideas, no catastrophes are connected with the first two ages of the cycle : all are reserved for the third age, which presents a very elaborate system of successive destructions and renovations. These destructions are arranged into two groups, a greater and a lesser, this latter representing a cycle of the Secondary era,¹ and the former the Autumno-solstitial cycle, under consideration. The greater catastrophes are Conflagration, Deluge, and Tempest, being three out of the four destructions belonging to the Primitive myth.

The omission of the catastrophe peculiar to the age of Earth—viz., Earthquake—is one of a class of results due to the division of the year by the equinoxes and solstices, which makes the technical places of the seasons different from their real places. Thus, for instance, the zodiacal spring commences at the winter solstice and ends at the vernal equinox ; and so of the other seasons. From this confusion it sometimes happens that, in a series of four symbols, two of them are aerial types, the autumnal type being dropped or carried on to the winter quarter, and the summer type taking autumnal attributes in addition to its own. In the present case the proper autumnal catastrophe is dropped, as a separate event, and the place of summer is considered as on the autumnal side of the summer solstice, and the first of the agencies of destruction is fire, the second water, and the third air ; and, as this exhausts the category of the ancient elements, the fourth region is blank, and without a representative, and hence the intermediate period is a time of negation—of non-entity. So that the *Nirvana*, the final repose and absorption into the deity, which was the reward of transcendent virtue in an older myth, as it is still to the modern Brahmin, and which was suggested by the age of water and other associations of the original fourth region, becomes, in the present cast of the fable, and to the modern Buddhist, the *Nirvana* of non-entity, the beatitude of final liberation from all the

¹ These lesser calamities are Famine, War, and Pestilence, the last succeeded by a purifying Rain which restores men to their original innocence ; and the causes of these calamities are Luxury or Lust, Anger, and Ignorance. These various attributions, which are all given in the exact order here stated, make the meaning of the fable perfectly transparent. Famine, Luxury, Lust, clearly point to the age of Earth, the place of food, enjoyment, generation, and which ought to be the place of virtue. War and Anger speak of the age of Fire, the place of the heat of passion, and of the *Kshatrya*, or warrior class, in the social myth explained in a previous page ; while Pestilence speaks directly of the age of Air, and Ignorance of the place of the Teacher in the same myth. The Rain, of course, alludes to the age of Water, which succeeds as an intermediate period.

trammels of being, while the catastrophe of the terminal tempest not only destroys, but utterly annihilates the universe. As might be expected, these doctrines are not universally received in their full integrity, but have given rise to endless speculations and subtleties in attempts to harmonize them with older views.

The Buddhist, however, is not satisfied with the simple arrangement of three destructions. He recognises in all sixty-four, in as many different periods. Of these destructions fifty-six are by fire, seven by water, and one by air. Every eighth is by water, except the sixty-fourth, which is by air; there are thus seven of fire to one of water, and seven of water to one of air. The deluges are more destructive and extensive than the conflagrations, and the tempest is the most destructive and vast in its scope of all. Commencing with the gentlest breeze, it gradually swells into inconceivable violence, till it shakes the foundations of the universe, and dashes in pieces "its ten million one hundred thousand worlds," with their superincumbent heavens, scattering their fragments through the depths of space and utterly annihilating every perishable thing, even to its subtlest essence. After thus continuing for an entire period, the cycle recommences, and a new universe comes gradually into being, not by the fiat of a creator, but by inherent necessity; and thus the same series of events as before succeeds, and so on and on for ever.

This is all that my limits will permit me to say of this curiously elaborate system, or of the rich mine of tradition of which it forms a part.

PERSIAN, ETRUSCAN, AND CHALDEAN CYCLES.

The great year of the followers of Zoroaster comprises the duration of the universe in a cycle of 12,000 years, subdivided in exact accordance with the arrangements and symbolism of the ordinary European zodiac; and this also was the duration of one, at least, of the cycles of ancient Etruria;¹ while the Antediluvian period of Chaldea was a cycle of 432,000 years, the duration of the Kali yuga of India. This long period was divided between the reigns of kings, the last of whom, Xixuthrus, is the equivalent of the Hebrew Noah, and in his reign occurred the deluge. As this cycle did not comprehend more than the early portion of the life of the Chaldean nation, it was probably but one-third of their great year, which would thus be 1,296,000 years, the duration of the Treta yuga, and ten times the Chinese cycle.

Finally, the *Supassyan*, a sect of modern Parsees, have a sacred history and chronology which not only recognise the zodiacs of four and fourteen

¹ Suidas, *Lexicon*, v. Tyrrhenia.

divisions, but also the apparent revolution of the heavens, which modern astronomers term the Precession of the Equinoxes. According to this system, the universe is governed by stellar and planetary influences, and the history, as far as it is special, recognises four great and similarly constituted dynasties, each apparently containing, like the first, fourteen great rulers, corresponding to the fourteen Manus of India. The sum of these four dynasties, assuming them to be equal in duration, for the accounts are incomplete, will amount to 25,920, with some thirty ciphers added; and this number was the recognised estimate among the ancients, of the precession of the equinoxes, being at the rate of one degree in seventy-two years—that is, 360 times seventy-two.¹

The Mexican cycle has already been spoken of, and space will not permit me to touch upon the curious and most ingenious adjustments of the ordinary Mexican year and of the lesser cycle of fifty-two years. Enough has been said to show that no random extravagance has created these often fantastic but always grand schemes and numbers, and that they display not isolated workings, but merely special developments of a great common body of traditions. In India and the remoter East the play of fancy has run riot as far as the checks inherent in these fables would permit, but as we move towards the West, towards Chaldea, Persia, Egypt, and Etruria, a greater soberness is exhibited; while, when we come to the classic regions of Greece, Italy, and Asia Minor, we meet with no numbers in the current creeds but such as may pass for purely historical data. Whence this remarkable contrast? Shall we say that ancient Greece and Italy were all soberness in their chronologies, however they may have luxuriated in other mythic formations, or shall we rather say that the critical spirit of the European mind has, in its periods of enlightenment, been ceaselessly warring with mythology, ceaselessly rationalizing its materials and curtailing its marvels, until it has at last converted the mythic consistency of its grand old legends into the prosaic incongruities of seemingly real history? The next paper will supply materials which may aid us in giving a rational answer to these questions.

L. B.

¹ See the curious account of this history and sect in the *Dabistan*, or “School of Manners,” of Mohammed Mohsan al Fâni, translated by Shea and Troyer.

THE WORLD BEFORE THE FLOOD.¹

THIS is a curious book, being an attempt to popularize geology, a science unquestionably important and imposing, but as yet in a crude and conjectural condition—a fact satisfactorily proved by the frequent new and contradictory theories which are daily propounded in explanation of some of its grandest phenomena. Meanwhile the present work has had great success in France; for we are told in the translator's preface that in less than two years' time it has reached a fourth edition and had five-and-twenty thousand purchasers. We presume to think that the title of the book and the illustrations which accompany it may have contributed as much to its popularity as the author's treatment of the subject and the soundness of his theories. The translator, himself a geologist, has added examples and illustrations, taken from British geology and British geologists, to those of the author, which are chiefly taken from his own country and countrymen. The illustrations are on a very extensive scale, embracing no fewer than two hundred representations of animals, plants, and other fossil remains, four-and-thirty of which are full-page illustrations, containing the author's notion of the state of the earth at various periods of its progress towards its present condition; and these landscapes are very properly entitled "ideal." The frontispiece may be taken as an example, for it is one of them. It has representations of sheep, goats, horses, and oxen, one of the latter being, as we think it ought not to have been, a fair representation of a Durham or short-horn fit to be exhibited at a Smithfield Cattle Show. The wild boar ought to have been added, for it is one of the most universally diffused of the mammalia; and, to complete the picture, the carnivora ought to have been present, for where the graminivorous animals are they are never absent. We throw out these hints for the benefit of a fifth edition of the French, and for, we hope, at least, a second of the translation. We have then a few birds in the act of flying, which may be crows, kites, or sea-gulls. The first man and woman are seen under the shade of some ancient trees, he with fig-leaves and she without them, but having their first-born kneeling before her, seemingly a woolly-haired urchin.

Our examination of the work, however, must necessarily be confined to what is more immediately ethnological in it; and this relates to the earth's history, from man's first appearance on it, and it embraces the last and the smallest part of it.

¹ *The World before the Flood.* By Louis Figuier. Translated from the fourth French edition. London: Chapman and Hall. 1865.

But the earth must be a fit habitation for man before he could live and multiply in it, and therefore we give the author's description of it before this momentous moment. According to the great mathematician La Place, the earth was in its pristine form "an extinct sun—a cooled-down star—a nebula or luminous cloud which passed from the gaseous to the solid state." In the gaseous state it would be as large as the sun, and the sun is fourteen thousand times as large as the earth itself; and one of the full-page illustrations exhibits the latter floating in space in this aeriform condition. When it first assumed a solid state, it consisted solely of such rocks as granite, syenite, porphyry, &c., wholly destitute of organised beings. This is called by geologists the "primitive" epoch. It was during this epoch that part of the molten interior of the earth was vomited through its crust up to the surface, to become such rocks as trachyte, basalt, &c., &c. Between this first epoch and what is called the Secondary epoch occurs what is called the Transition epoch; and this, like the remaining epochs, is divided into periods, in this instance consisting of what are called the Silurian, the Devonian, the Carboniferous, and the Permian periods.

"After," says our author, "the terrible tempests, the grand disturbances of the mineral kingdom during the primitive period, Nature would seem to have collected herself in sublime silence preparatory to the grand mystery of the creation of living beings. During the primitive epoch the temperature of the earth was much too high to permit of the appearance of living beings on its surface. The darkness of the thickest night concealed the birth of the world. The atmosphere, in short, was so charged with vapours of various kinds that the sun's rays were powerless to pierce its opacity. Upon this burning soil and in the continuous night organic life could not manifest itself. No plant, no animal could then exist upon the silent earth, and in the seas of the period are only deposited unfossiliferous strata." It was in the Transition epoch that we discover the first traces of organic beings of rude and simple forms, vegetable and animal.

"During the Transition epoch," says our author, "our globe would appear to have been appropriated only to beings which lived in the waters, above all to the crustaceans and fishes: during the Secondary epoch reptiles seem to have been its chief inhabitants. Beings of this class, and of astonishing dimensions, would seem to have multiplied themselves most singularly; they seem to have been kings of the earth." The Secondary epoch is divided by geologists into three periods, distinguished by their plants and animals. In this epoch occur such uncouth monsters as the *Ichthyosaurus* and *Plesiosaurus*, monsters that would make a dinner of the degenerate

alligator of our time, and for whom a man would not be a breakfast; but happily there existed no men to be devoured.

The Tertiary epoch follows the Secondary, and, like it, is divided into three periods, to which Greek names have been given. A great change and a great improvement in the class of animals now inhabiting the earth takes place, and the mammalia, or animals nourishing their young with milk, make their appearance for the first time. The most remarkable of these are the Pachydermata, or thick-skinned animals, including the elephants, the mammoths and mastodons, of which not fewer than twenty distinct species have been discovered. But, besides these gigantic monsters, there were created at one or other of the three periods of this epoch apes, bats, carnivora, marsupials, or pouched animals, oxen, horses, and dogs, all differing from those of our present earth. A great change also takes place in birds and in fishes.

We arrive at last at the Quaternary epoch, or our own, when the earth became a fit habitation for man, and accordingly he made his appearance, and this certainly under the most uncomfortable conditions imaginable, since the naked and unarmed animal had no advantage over other creatures beyond the possession of hands and a brain of incomparable superiority. "It was only," observes our author, "after the glacial period, when the earth had returned to its normal temperature, that man was created;" and, he adds, "Whence came he?" and thus replies: "He came whence the first blade of grass which grew on the burning rocks of the Silurian sea came; from whence came the different races of animals which have from time to time replaced each other on the globe, gradually rising in the scale of perfection. He came from the will of the Author of the worlds which constitute the universe."

M. Figuier quotes Buffon's view of man on his first appearance. We transcribe it, although at the same time satisfied that it is neither so truthful nor graphic as that given by Sir Humphrey Davy in the philosophic dream of his "Consolations in Travel." "The first men witnessed the convulsive movements of the earth, still recent and frequent, leaving only the mountains for refuge against its inundations; and, driven from this asylum by volcanoes and earthquakes which trembled under their feet, uneducated, naked, and exposed to the elements; victims to the fury of ferocious animals who could scarcely be avoided, impressed also with a common sentiment of gloomy terror, and urged by necessity, would they not at first unite for defence, then assist in forming dwellings for each other,—afterwards with arms? They began by shaping into the form of hatchets those hard flints, hip-stones, and thunder-bolts which are supposed to have been formed by thunder and fallen from the skies, but which are, nevertheless, only the first examples of man's art in a pure state of nature. He will

soon draw fire from those same flints by striking them against each other. He will seize the flames of the burning volcano, or profit by the fire of the burning lava, to light his fire of brushwood in the forest; for by the help of this powerful element he cleanses, purifies, and renders himself and his dwelling healthy. With his hatchet of stone he chops wood, cuts trees, shapes timber and puts it together, fashions his arms, and makes instruments of first necessity; and, after furnishing himself with clubs and other weighty and defensive arms, did not these first men find means to reach the light-footed and distant stag? A tendon of an animal, a thread of the aloes-plant, or the tough bark of some ligneous plant, would serve as a cord to bring together the two ends of an elastic branch of yew, forming a bow. Other and smaller flints, shaped to a point, form the arrow. They will soon have snares, rafts, and canoes; they will form themselves into little nations composed of families of relations, as is still the custom with savage nations, who have their game, fish, and fruits in common. But, in all those countries in which space is limited by water or surrounded by high mountains, these small nations become too numerous, have been in time forced to parcel out the land between them, and from that moment the earth has become the domain of man. He has taken possession of it by his labour; he has cultivated it; and attachment to the soil follows the very first act of possession; the private interest makes part of the national interest. Order, civilization, and laws succeed, and policy acquires form and consistency."

Now all this is certainly very eloquent, but it is very far also from being correct; and M. Buffon would not have so written had he belonged to the nineteenth, instead of to the eighteenth, century. There is no possibility of kindling fire by knocking two flints together any more than there is by knocking two eggs or two apples together. It is not very likely that he should have snatched fire from a volcano or from burning lava, because he would be either suffocated or burnt to death in the attempt. But, besides this, even if it were practicable to light a fire at a volcano, volcanoes, since man's arrival in the planet, are exceptions to the rule of their general absence. There are no volcanoes, active or dormant, in Egypt, India, Assyria, or China; and yet the inhabitants of these countries, being among the earliest civilized of mankind, must have been the first to have learnt the art of kindling a fire, fire being an indispensable requisite to civilization. It seems strange that the great French naturalist should have been unacquainted with the fact, which must have been well known to some of his cotemporaries, that the savage produces ignition by the simple process of rubbing two bits of dry wood against each other. No race of savages, however low in the social scale, or however poor in intellect, has ever

yet been found ignorant of this very simple art. There was not a single tribe over the vast continent of Australia, for example, that was not in possession of it.

M. Buffon's theory, which makes civilization to originate in a straitened territory proportioned to population, is a more serious mistake. The very cause to which he ascribes the progress of society is that which obstructs it. Civilization has not sprung up in sea-girt islets and narrow mountain valleys. On the contrary, all the great seats of early civilization have been wide plains, as in the examples of the places the names of which have just been quoted.

M. Figuier and his translator and editor go over the whole field of the small discoveries which go to give man's first arrival on earth an antiquity very far beyond what the popular belief ascribes to it—such as the discovery of stone knives in the drift along with the bones of long extinct animals, the same implements in caves with the same animal relics, and in one or two caves along with the bones of man himself,—the results of the midden heaps in Scandinavia, in America, in Australia, and even in the Malayan peninsula, with the pile villages of the Swiss lakes, which exhibit our European ancestors in a condition little better than that of the present savages of New Guinea, and considerably below that of the savages of the interior of Borneo.

There is a geological history of the world as well as a civil history of man; but the first is dateless. We can say that the primitive formation of the globe ceased, because it is marked by the beginning of the Transition era, and so on with the other formations down to the Quaternary, when the evidences of man's existence first present themselves; but to ascribe a date to their commencement, or to their termination, or to tell how many ages they lasted, is impossible. We may count by thousands or by millions of years, and be in either case equally wide of the truth. Of the vast antiquity of the earth itself the proofs are abundant and complete. Compared to it, the creation of man is a comparatively modern event, and may perhaps be reckoned rather by thousands than by millions of years.

The author of *The World before the Flood* is a believer in the unity of the whole human race, and thus expresses himself on the subject: "We think with many naturalists that the stock of humanity is unique, and that the several races of negroes, of black and of yellow men, are only the result of the action of climate on organism." But he gives no reason for the belief that is in him, and must therefore be concluded to be very unreasonable. He sees a race very fair in Norway, and getting darker as you increase your distance from the equator, in the shape of Laps and Esquimaux. You see them of the same coppery red in America, under the equator, and

for full fifty degrees to the north and to the south of it. In Africa you find men coal-black under and about the equator; and in Borneo and Sumatra you find them yellow in the corresponding locality. The European is white at the same distance from the sun in which the Chinese is yellow. As far as history extends, it has always been so. The negroes and the Egyptians who contributed to the building of the Pyramids some 5000 years ago are represented in painting and sculpture very much like negroes and Egyptians of the present day. All these most salient facts are ignored by the author of *The World before the Flood*, who must therefore be pronounced as among authors of an indelible superstition.

ETHNOLOGICAL PROCEEDINGS.

ETHNOLOGICAL SOCIETY.

Nov. 21st, JOHN CRAWFURD, Esq., President, in the Chair.

THE Paper of Mr. Wright, "*On the True Assignment of the Bronze Weapons, &c., supposed to indicate a Bronze Age in Western and Northern Europe*," alluded to in our last issue, and which we proposed to present to our readers *in extenso*, will appear in the next volume of the Transactions of the Society, which is nearly ready for publication, and we must not, therefore, forestall its freshness in its complete form. Our readers, however, will be glad to learn the general purport and character of its argument.

Mr. Wright, while ready to accept the recent geological evidence in favour of the high antiquity of man, altogether repudiates, not only as premature, but as essentially baseless, the Scandinavian theory of the division of pre-historic antiquity into the three ages of Stone, Bronze, and Iron. "I am by no means inclined," he observes, "to impugn hastily the general conclusions to which men of science seem now arriving upon the great question of the antiquity of man—it is a subject in regard to which I look forward with anxious interest to the increase of our knowledge, certain that the ultimate result must be truth. *Magna est veritas, et prævalebit*. But I complain of the treatment which the science of archæology has hitherto received at their hands. There was a cry some time ago—and nobody joined in it more heartily than myself—that a close alliance should exist between archæology and geology; but this was to have been a fair and equal alliance, in which the geologist should accept

the conclusions of archæology on the same footing as the archæologist is expected to receive the opinions of the geologist. Instead of this, the geologist seems to have considered that the science he had thus to give his hand to is a vague and uncertain one, and he has created a sort of archæology of his own, made in the first place to suit his own theories, and he takes only the advice of those who will give him an opinion which is in accordance with a foregone conclusion, and this is often quite contrary to the teachings of archæological science. Archæology, as a science, has now reached too high a position to be treated with so little respect. But let us go on to the more especial subject now before me."

He then, after paying a due tribute of praise to Sir John Lubbock's recent work on *Pre-historic Times*, in which the Scandinavian theory is adopted and defended, proceeds to comment on some erroneous statements made in that work relative to his (Mr. Wright's) opinions.

"I have said," he observes, "and I still say, that I do not believe we have many—perhaps any—monuments of importance much older than the Roman period, and that such ancient remains as are supposed to be older than the Roman period bear no characteristics which would enable us to ascribe them to any particular date. I have never pretended to deprive the Britons of the use of stone,—it would not be in my power; but I say that stone was also in use for the same purposes in Roman and Saxon times, and that the mere presence of a stone implement does not prove that the deposit was British any more than Roman. Stone, of various kinds, is a very ready and convenient material for purposes such as the stone implements of antiquity evidently served, and it is found in use in Western Europe even in the Middle Ages. Stone implements have often been found on Roman sites in this island; they have been found in Saxon graves in Kent; and I have myself found flint flakes, evidently placed there by the hand of man, in Saxon graves in the Isle of Wight, perfectly resembling those of which the geologists have talked so much of late. The Abbé Cochet found similar flint flakes in Roman graves in Normandy, so arranged as to leave no doubt that they were placed there intentionally."

He then proceeds to establish what he believes to be the essential identity in material and form of Roman weapons with the swords of the supposed Bronze age. He accounts for the rarity of bronze weapons in Roman sepulchres by the fact that the Romans did not bury their weapons with the dead, but took great care of them; and for their rarity in the sites of Roman battles by the supposition that, in cases where their legions were defeated, the barbarians would carefully carry off their weapons, which to them would be objects of inestimable value. Thus a Roman sword in iron is one of the rarest objects of antiquarian discovery. "I

remember," he observes, "within my own observation, hardly a single instance of one having been found in Roman Britain, and not above two swords supposed to have been found here; and it is my impression that the bronze handle of one of the latter presented a considerable resemblance in its style of ornament to those of some of the bronze swords found in Scandinavia. During the whole of our excavations at Wroxeter, which have filled a considerable museum with articles of Roman fabrication, we have never met with the smallest fragment of a Roman sword, nor do I remember a single instance of such a find on any site of a Roman town or villa in this island."

So far from our *not* finding the bronze swords in juxtaposition with Roman remains, Mr. Wright contends, on the contrary, that the archaeological fact is that in every case where they have been found in Britain or Gaul, and the details of the discovery have been carefully observed, they have been found under circumstances which lead to the strongest presumption of their being Roman. Mr. Wright then proceeds to notice some discoveries of bronze swords in France, regarded as Roman by eminent French antiquarians, and also some recent discoveries in Algeria of monuments, on one of which there is a representation of the accoutrements of a soldier, with the figure of a sword on each side, which Mr. Wright compares with the bronze swords under consideration, and then refers to similar representations on coins, some of which he refers to the era of Julius Cæsar, and concludes this portion of his argument with the emphatic statement, "It is my firm conviction that not a bit of bronze which has been found in the British Islands belongs to an older date than that at which Cæsar wrote that the Britons obtained their bronze from abroad, meaning, of course, from Gaul, *ære utuntur importato*. In fact, these objects in bronze were Roman in character, and in their primary origin."

He then goes on to show that the Romans did use bronze for their weapons, and that the argument drawn from the word *ferrum*, as synonymous with *ensie*, has really no force in this discussion, as it only proves that the Romans *did* use iron for their weapons, without at all proving that they used it exclusively.

Finally, Mr. Wright gives his view of the manner in which these weapons of bronze were distributed over Britain and the North by itinerant venders and manufacturers, something like our modern pedlars, and contends, from the general identity of these objects, that they must have had a common source, and that this could only be the Roman empire, and concludes by repeating his belief, on which he has always insisted, that in this part of the world the use of bronze did not precede that of iron; a

belief in which he believes himself fully supported by the opinion of that great metallurgist, his friend Dr. Percy.

Sir John Lubbock, who was warmly received, said that he was pleased to find that his friend Mr. Wright did not regard him as utterly lost, but as only misled by the Northern antiquarians. These, however, never stated that there was a time when bronze only was used for cutting implements, but simply that there was a time when this was the only *metal* so used, and that then came a time when iron was the chief metal employed for implements, bronze being employed for ornamental purposes. It does not follow that in either of the latter periods bronze or iron was used exclusively, as there must have been a time of transition. This also will account for the two metals sometimes being found together, although these instances are so rare that Mr. Wright had only cited one, at Ardoch, and there it was only found in the neighbourhood of Roman antiquities. The fact of the two swords being fished together out of the Thames proved nothing; for if, some centuries hence, Roman coins were found at London Bridge in company with those of Queen Victoria, it would be no proof that Queen Victoria ruled over the Romans. He pointed out that the swords stamped on the Roman coins, spoken of by Mr. Wright, bore scarcely any resemblance to the old bronze swords found all over Europe, and added that, whenever Virgil armed a man with a bronze sword, he did so to convey an idea of great antiquity. Sometimes two or three thousand objects of bronze have been found without any iron, and in the peat-bogs of Germany implements of iron without any bronze. Roman bronze, again, contains much lead, and the more ancient bronze seldom more than one per cent. of lead, as it existed in it, in fact, only as an impurity. He based his own opinion, first, upon the fact that implements of the two metals were seldom found together; secondly, that the composition of ancient and Roman bronzes is different; thirdly, that the bronze implements are found in places to which Roman civilization never reached; and, fourthly, because the very name given to the sword by the Romans was "iron."

Mr. Burke, before entering on the immediate question at issue, observed that geologists could not meet antiquarians on the equal terms proposed by Mr. Wright, from the simple fact that the conclusions which were held as authoritative in physical science were based on direct observation, while most of the conclusions of antiquarians were essentially hypothetical, not derived from the facts of archæology itself, but from historical statements, which in their very nature were unsusceptible of proof. He then expressed his belief that Mr. Wright had made out, for one portion of his opinions, a very strong case. He did not see how it could be denied that the Romans

used bronze weapons as well as iron ones, nor that there existed a strong family likeness between these weapons and those found in the non-Roman regions of Western and Northern Europe; but still he maintained that all this did not in the least invalidate the theory of the Northern antiquarians. In the first place, that theory had been expressly applied by them to Scandinavia itself, and, even if not applicable elsewhere, it was unequivocally indicated there. It was based on the very highest order of evidence, an evidence singularly and elaborately systematic—not upon relics found in refuse-heaps, or under accidental circumstances of any kind, but upon those found in tombs of the most special character, and which present, in all their concomitants of form, appurtenances, contents, and the character of their burials, the clearest evidence of belonging to three distinct eras of formation, and this quite irrespective of the weapons in question. If the Roman swords were of the kind contended for by Mr. Wright, then it followed either that there was an older Rome than our chronologies speak of, or that Italy retained the use of bronze weapons long after the iron age had been elsewhere introduced.

Sir Roderick Murchison said he thought it scarcely right for him to offer any remarks on such a strictly archæological subject; still Cuvier had said truly that geologists were only archæologists of another order. He noticed that Mr. Wright's remarks did not touch upon the succession of the different implements. The age of stone was of very great antiquity, as proved by the flint arrow-heads found in the drift near Abbeville; for, since those were made, great physical changes and convulsions had taken place on the earth. Those flint heads must have been made in remote ages he could not pretend to measure, and at a time when the mammoth and the great rhipoceros inhabited this land.

After a few remarks from Mr. Prideaux, relative to the small handles of the bronze swords found in the North,

Mr. Nash said that, although he believed with Sir John Lubbock, he must admit there was no evidence to controvert the opinion of Mr. Wright.

Mr. Wright having made a few remarks in reply,

The Chairman said he did not believe that iron preceded bronze, because bronze is such a difficult metal to make, whilst the manufacture of iron is comparatively easy, and iron is made now by very savages in Africa and Borneo. Bronze weapons were greatly prized articles of commerce, and thus we may account for their finding their way into distant regions where the Roman sway never reached.

Dec. 12th, JOHN CRAWFURD, Esq., President, in the Chair.

Sir John Lubbock exhibited some flint flakes from the Cape of Good Hope. The spot where they had been found was supposed, he said, to be the site of some ancient village. The flakes were exactly similar to those found in other parts of the world, but none had previously been discovered in the Cape. He said he had several more which he should exhibit at the next meeting.

The paper of the evening—"On the Physical and Mental Characteristics of the Oriental Negro," by the President—was then read by the Honorary Secretary, Mr. Nash.

Mr. Crawford observed that neither on the continent of Europe, of America, nor indeed of Asia, until we reach its ultimate southern extremity, is a native Negro race to be found. Not so with the Asiatic Islands, or what geographers have recently called the Oceanic region. Proceeding eastward, we first find a Negro race at the distance of 3000 miles from the continent of Africa. This is in the Andamans, a group of islands extending in a narrow line from the 10th to the 14th degree of north latitude, and within the region of monsoons and hurricanes. The sole inhabitants of these forest-clad islands are pigmy Negroes. In so far as their physical form is concerned, they have been well described by Dr. Mouat and Professor Owen. One living and two dead male subjects were examined by Dr. Mouat, and found to be of the height of 4 feet 9½ inches. As these, however, were warriors and rowers, and probably, therefore, above the average stature, we may probably take the usual height of the male adults at 4 feet 9 inches. Taking the average stature of the African Negro to be the same as that of the European, it will follow that the Andaman Negro is by eight inches short of the African standard, and at least four inches short of the average stature of European women. The person, for so diminutive a people, is strong and well built. The features of the face are not particularly described, but have the African type, and, to judge by the photographic sketch in the work of Dr. Mouat, are very ugly. The precise texture of the hair of the head is not described, but it is palpably woolly. The colour of the skin is described as a shining black. Mr. Crawford remembered seeing, many years ago, two natives of the Andamans who had been captured as children, and were at the time full-grown men. In colour and stature they agreed with the account given by Dr. Mouat: the hair of the head seemed short and woolly, and the features were somewhat more prominent than with the African Negro.

This strange race of man is found at a distance of little more than 1000 miles from the Hindus of Bengal, little more than half that distance from

the Hindu-Chinese of Pegu, and but 70 miles from a pure Malayan race in the Nicobar Islands.

The next example we have of a Negro race is in the northern part of the Malay Peninsula, but in that part of it only, distant about 500 miles from the Andamans, and there along with tribes of a Malayan race. A full-grown individual male, brought from the mountains of the principality of Queda to Penang, was measured by the late General Macinnes, and found to be 4 feet 9 inches high, of brown complexion, and with black woolly hair. Two children of this race were sent to Mr. Crawford himself by the Malay Prince of Tringanu, a state which lies opposite to Queda. They were of a brown, and not black complexion, with hair of a woolly texture, and the African Negro features, although in a mitigated form. This race, known under the name of Sámang, are confined to the forests and mountain recesses, and, it may be said, are everywhere hemmed in by Malays, without any communication with the sea-coast.

The next race of Negroes which we find, proceeding eastward, is in the Philippine Islands, at least 1500 miles distant from the Malay Peninsula. These also are diminutive beings, and called by the Spaniards Negrillos or Negritos, signifying little Negroes. The average stature of the adult male does not, it is stated, exceed 4 feet 6 inches; but the measurement here given being French, the actual stature is probably about the same as that of the pigmies of the Andamans and Malay Peninsula. According to Spanish writers, the hair of the head is woolly, the skin not black, but of a very dark brown, which they compare to the colour of over-roasted coffee-berries. This people, known to the other natives of the Philippines by the term "Aita," are found only in mountain recesses, being everywhere encompassed by the brown-complexioned Malays, and without access to the sea-coast. They exist only in five out of the almost countless islands of the Philippine Archipelago—namely, Luçon, Panay, Mindoro, Negros (which takes its name from them), and Mindanao—and their total number is estimated not to exceed 25,000, out of a population of the Malayan race which probably does not at present fall short of 6,000,000.

There are no Negroes in any of the numerous islands of the proper Malay Archipelago. Finding them in the Malay Peninsula, which is properly a part of that Archipelago, we should expect to meet with them in such an island as Borneo, so near to the Peninsula, and so much resembling it in animal and vegetable products. Although containing many Malayan tribes nearly as wild as the Negroes of the Peninsula, no Negro race now exists in it, nor is there any record, or even tradition, of their ever having existed. Proceeding in a southerly direction, we first encounter a Negro people in the great island of New

Guinea and the islets on its coast, at the distance of 500 miles from the nearest and 1200 miles from the most remote of the Philippines, and full 2000 miles distant from the Negroes of the Malay Peninsula. New Guinea is nearly double the size of the British Islands, and is wholly peopled by Negroes; but these are no longer pigmies, but men of about the same stature as the Malays, which will give them an average height of 5 feet 3 inches, making them by half a foot taller than the pigmy Negroes already described. With the New Guinea Negro the complexion varies from a deep brown to a black; the nose is more or less flat, with wide nostrils, drooping at the extremity. The mouth is large, the lips thick, the teeth good, but not, as in the African, obliquely set in front. The hair of the head is of woolly texture, and grows in spiral separate tufts to the length of from nine inches to a foot. Left uncut, it can be dressed so as to form a bush or mop round the head, from which it was that Dampier gave this people the name of "mop-headed Indians." It is the quality of the hair (growing in detached tufts and capable of elongation) and the shorter stature which chiefly distinguish the Negro of New Guinea from the typical one of Africa, whose hair is short and covers uniformly the whole scalp, while his stature is equal to that of the European.

It was the striking resemblance of the inhabitants of this great island to those of Africa that led to its present name, which was bestowed upon it by the Portuguese, its first discoverers, in the beginning of the sixteenth century. Mr. Crawford himself had seen in Java several of the Negroes of New Guinea as slaves, and, until better informed, he believed them to be Africans—so striking, at first view, is the resemblance between the two races. With respect to the name of Papua, which Europeans have sometimes given to New Guinea, the word is simply the Malay adjective for "frizzly," or woolly, and equally applicable to any object having this quality, whether the hair of a Negro or the fleece of a sheep.

From the western extremity of New Guinea, in 130° east longitude, to the remotest of the Fijis, in 180° , and from the equator to within a degree of the southern tropic—that is, over 50 degrees of longitude and 22° of latitude—the native inhabitants of all the islands of the Pacific are Negroes, without an exception; while, to the north of the equator, and east of the 180th degree of longitude, no race of Negroes is found. The limits of what may be called Oriental Negroland are very well defined. To the north the Negroes are bounded by a race of yellowish-brown complexion, with lank hair, who, although not Malays, very much resemble them. The island of Waygeo and the Aru Islands, but 60 miles from New Guinea, are peopled by Negroes; but Ceram, about 90 miles from its south-west

coast, is inhabited by a totally different race, lately called by European geographers Negro-Malayan, from their partaking of the character of the Negro and the Malay, although assuredly not a cross of the two, but a pure aboriginal race. To the south, the Negroes of New Guinea have the Australians, a very different race—the sea that divides them at one point not exceeding 80 miles in breadth. To the east the Negroes have the Polynesian race within 250 miles of them, and extending over 70° of longitude and at least 60° of latitude.

But, although the people within the limits above described be all Negroes, there exists a great diversity among them, and probably the people of the different islands or groups of islands will be found independent and aboriginal races. We possess authentic information respecting a small number of them only, and of these some examples were given. Captain Cook thus describes the inhabitants of Mallicollo, one of the New Hebrides or the Great Cyclades: "Had we made a longer stay, we might have soon been on good terms with this ape-like nation: for, in general, they are the most ugly, ill-proportioned people I ever saw, and in every respect different from anything we had met with in this sea. They are a very dark-coloured and rather a diminutive race, with long heads and flat faces, and monkey countenances. Their hair, mostly black or brown, is short and curly, but not quite so short and woolly as that of a Negro. Their beards are very strong, crisp, and bushy, and generally black and short."

On the same high authority, we have a description of the inhabitants of Erramango, another island of the same group. "These islanders," says Captain Cook, "seemed a different race from those of Mallicollo, and spoke a different language. They are of the middle size, have a good shape, and tolerable features. Their colour is very dark. Their hair is very curly and crisp, and somewhat woolly."

Of Tanna, one of the New Hebrides, Cook's account is the following: "At first we thought the people of this island, as well as those of Erramango, were a race between the natives of the Friendly Islands (Polynesians) and those of Mallicollo; but a little acquaintance with them convinced us that they had little or no affinity to either, except it be in their hair, which is much like what the people of the latter island have. The general colours of it are black and brown, growing to a tolerable length, and very crisp and curly. These people are of the middle size, rather slender than otherwise. Many are little, but few tall or stout. Most of them have good features and agreeable countenances."

Of the Negroes of New Caledonia, Forster, the naturalist and companion of Cook, gives the following account: "The people were different

from any we had seen. They were very stout, tall, and in general well-proportioned; their features mild, their beards and hair black and strongly frizzled, so as to be almost woolly in some individuals. Their general colour was swarthy or a dark chesnut-brown, nearly the same with that of the people of Tanna."

Admiral Erskine, a worthy follower of the greatest of our navigators, confirms, at an interval of eighty years, Captain Cook's account of the islanders of Tanna, while he adds some traits of his own. "We at once recognised," says he, "Captain Cook's description of the people as identical with their appearance at the present day. They are generally of short stature, but muscular and athletic. The colour of their skins is a shiny black, and their bodies are covered with hair or a kind of down. Some had black or brown crisp hair, but that of the greater number was twisted into a number of thin cords. The nose was generally rather flat, and the eyes of a chocolate colour."

In the island of Vanicoro, celebrated for the wreck of *La Pérouse*, we have an example of another Negro people, different from all the others of the Pacific Islands. M. D'Urville, in the "*Voyage of the Astrolabe*," describes them as small and very black, with hair crisp but not bushy, and altogether approaching nearer to the African type than any of the other Negroes of the Pacific. They cultivate the taro, the yam, the batata, and the banana, but are in other respects naked savages.

Admiral Erskine's account of the Fijians, at the extreme eastern limit of Oriental Negroland, is the following: "It is impossible," says he, "not to perceive, on arriving at these islands, that one has come among a distinct race of man. The standard of height among the Fijians is about the same as that of their neighbours (the Polynesians), but their more muscular and less rounded limbs, their crisp hair—even when, as among the common people, it has undergone no process of dressing—their somewhat flatter faces, and the dark colour of their skins, to which the quantity of hair on their bodies gives a bluish-black tinge, offer a strong contrast to the many Tongans (Polynesians) whom one has generally an opportunity of comparing with them on the spot." In Admiral Erskine's work, the "*Narrative of a Voyage in the Western Pacific*," there is a characteristic portrait of a Fijian in the person of Thaukiambau, chieftain of Viti, in which we find the unexaggerated Negro with a beard, whiskers, and moustachios that a Persian would not be ashamed of, and this, not under a cotton turban, but one made of the paper-mulberry.

Thus we have, in what may be called Oriental Negroland, several distinct varieties of man, independent of the varieties of the African Negro. Mr. Crawford had here distinguished no fewer than seven, nor does he think

that this exhausts the number ; and, notwithstanding points of similarity between the various Negro peoples, there is no reason, he thinks, for regarding them as having a single origin. Even language, often appealed to improperly, is here on the side of diversity. Thus, on the continent of Africa, there are computed to be several hundred separate and independent tongues, without any other connection than a few words in common, such as are known to prevail in other parts of the world between nations or tribes within practical reach of each other. The same diversity prevails among the eastern Negroes, as far as our present knowledge of them goes.

As to the social condition of the Negro races, Mr. Crawford observed that the inhabitants of the coasts of the "Great Bay," or Bay of Geelvink, on its northern side, which so deeply indents the island as to make New Guinea to consist of two peninsulas of unequal size, have attained a certain measure of civilization, in consequence of their long connection with, and indeed subjugation by, a Malayan people. They have large dwellings, which accommodate several families ; are decently clothed, but with foreign materials, for they have no textile fabrics of their own ; have large rowing and sailing vessels, a knowledge of making malleable iron, and a rude acquaintance with agriculture—cultivating a little rice, the sago and coco-palms, and the yam. They are in possession of two domesticated animals, the hog and the dog. Their chief food consists of sago and fish. According to the testimony of the Dutch navigators of 1849, they are gentle to timidity, and strictly honest.

That they owe the degree of civilization they have attained to the Malayan race is to be inferred from the existence, in such of their languages as have been examined, of a considerable number of Malayan words—as, for example, the names for nearly all the objects above enumerated, and all terms connected with trade.

The rest of the inhabitants of New Guinea, of the same race as those now described, are in a very different state of society—in fact rude, naked, and inhospitable savages, without knowledge of agriculture or arts. The only advantage they display over the Australians is in the possession of boats ; but they are very far below the rude inhabitants of the interior of Borneo, who have made some progress in the arts—cultivating corn, fabricating iron, and rearing the dog, the hog, and the common fowl. They are, as already stated, divided into innumerable petty tribes, speaking different languages, engaged in frequent wars, the object of which is to make prisoners for sale or ransom—in this respect a counterpart of Africa on a small scale.

The paper next described the condition of the Fiji or Viti group, especially

quoting the authentic and impartial account of Col. Smythe, who, as a Government Commissioner, was deputed in 1861 to report on their capabilities as a British colony, and also referring to Admiral Erskine and to the American expedition of Admiral Wilkes. The Fijians are there contrasted with the Polynesian races, and especially with those of Tonga, the immediate neighbours of the Fijians; and the contrast is in all respects in favour of the fair races. Mr. Crawford then returns to Negroes of the Andaman Isles, of the Malay Peninsula, and of the Philippine Archipelago, and takes occasion to dissent from the theory of Dr. Prichard that these Negro races once occupied the entire Malay Archipelago, from which they were driven by the intrusion of the Malay races.

Finally, Mr Crawford thinks that, from the facts stated in this and the previous paper on the Occidental Negro, the conclusion is inevitable that the Negro races, of whatever kind and wherever found, are inferior to all the other races of man in juxtaposition to them. In Africa they are inferior to the Mauritanian, the Egyptian, the Nubian, the Arab, and the Hindu. In the Malay Peninsula, in the Philippines, and in New Guinea, the Negro is far below the Malay, and in the isles of the Pacific invariably below the brown straight-haired Polynesian. It is his mental inferiority that makes the Negro everywhere liable to be domineered over or enslaved. On this account the Papuan is enslaved by the Malay, as the African Negro is by the Arab or the European.

At the conclusion of the paper Mr. Crawford vacated the chair to Sir John Lubbock during the discussion.

Dr. Mouat, being called on to address the meeting, said that he did not know that he could add much to what had been said by Mr. Crawford. We had scarcely any addition to our knowledge of the Andaman Negroes since 1857. In that year he was in the Andaman Islands, retaking possession of them in the name of the British Government. Although nearly the lowest type of humanity, the inhabitants are susceptible of education and civilization. In 1819 he was on board a ship which picked up a stray canoe containing four natives of the Andaman Islands—a man, woman, boy, and girl. They were taken to Penang, where it was found impossible to civilize the man and woman, who finally ran away into the woods, and probably perished. With the boy and girl, however, they succeeded better, although the boy was incorrigibly idle and dissipated, and died of drunkenness at the age of sixteen. Mr. Anderson took the girl under his care, and had her educated after the English fashion. She was found to be docile and intelligent, and has achieved an education equal to the best educated class of servants in England. She is about forty-five or forty-six years of age, and is still in the service of Mr. Anderson. (Dr.

Mouat here exhibited her photograph and specimens of her handwriting.) He could corroborate all that Mr. Crawford had said about the Andamanian language as being distinct from every other. He looked at the Andaman Islands also in a political point of view, and thought them admirably adapted for penal settlements, seeing that they could be sufficiently guarded by a single gunboat. Dr. Mouat cited Capt. Colbert, who visited these islands some eighty years ago, in support of what he had said. He also quoted Col. Freer and others, and concluded by saying that the natives are clever in the manufacture of fishing implements, and expert in the use of the spear. He once saw a native stand at the head of his canoe, dart his spear down into the water, instantly dive in after it, and come up kicking and splashing with a large fish thus secured. The spear was also a weapon of warfare, and once he had a narrow escape of his life. A native flung a spear at him from a distance of forty yards, and struck the ground between his feet; the native, thinking he had made a hit, began bounding up and down in a joyous war-dance. On discovering his mistake he ran away, receiving some small shot in the rear from the Doctor's piece as a memorial of the exploit. He should not, however, have saluted him in this manner had not the native first made the attempt upon his life.

Sir Edward Belcher confirmed generally the statements of the paper, though he pointed out a few exceptions. The natives of New Guinea, he said, vary much in form and stature: one man whom he saw there was more than 6 feet high, and had an aquiline nose. The colour of the hair of the people in New Guinea is changed by means of a dye composed of wood ashes; and they plait their hair. Speaking of the Fiji islanders, he said that some of them also are very large men, the chief's brother being at least 5 feet 10 inches. He mentioned a striking instance of the cannibalism of these islanders. When he was there they were at war, and they took 150 prisoners, whom they killed and baked, and served parts of their bodies to the warriors as prize-money, giving two heads to the missionaries, and holding the palms, hands, and feet to be the most delicate and delicious food.

Professor Busk said the skulls of the Andaman islanders, like the skulls of all savage people of the same race, are very much alike: they differed from those of the African Negro in not being so long. In the colour and crispness of the hair there was also a difference. The Hottentot he considered a distinct race from the inter-tropical Negro, as shown in the form of the skull, and in other characteristics. Alluding to the colour of the hair, he mentioned that a Papuan girl from New Guinea had hair of a chocolate colour quite distinct from that of an African Negro.

Dr. Copeland said he regretted being absent on a former occasion, when the Negro of the West Coast of Africa was discussed, as he thought he could have adduced facts which had not been alluded to in the papers read, and which would throw more light upon the subject. He then proceeded to describe the organic and other differences which he found between the Negro and the fair races.

Sir John Lubbock observed that the two principal points in the paper were, first, whether the Oriental Negro belongs to a separate race, and, secondly, were Negroes a lower race of mankind. He felt it difficult to believe with Mr. Crawford in a great number of separate creations; and the existence of different people on islands many hundreds of miles apart from any other inhabited land was no proof that they might not have migrated there—at least there was no difficulty in the case to those who believed in the great antiquity of man; for geological evidence showed great depression in the islands of the Pacific, and they might at one time have been connected with the Continent. With regard to the inferiority of the Negro race, he believed them to be at present in a very low state morally. Nothing could be more degraded than the condition of the Fijians; but, looking at their mental capacities, he did not think they were inferior to those of other savage people. The Australians and the natives of Central Brazil were quite as low.

Mr. Burke called attention to the clear and broad distinctions between the different families of man which the paper suggested. On the one hand we had two great sections in the Negro type itself—the Western and the Eastern; and these differed from each other in a great variety of particulars, and more even in mind than in body. On the other hand, we had the Eastern branch differing in all respects from two other families of man, and often, when existing under external circumstances, absolutely identical—some in the midst of Malay races, some side by side with Polynesians. There was no reason for attributing these differences to accidental influences. They spoke, on the contrary, of that specialization and subdivision of types which is presented to us in all departments of nature. We have, in the first place, to distinguish the great branches or ethnic realms, as they have been termed, into which the human family naturally divides, and then to expect in these, what we actually find, viz., a subordinate specialization and subdivision, instead of looking for the uniformity which our term race is supposed to imply, and considering that the absence of this uniformity necessarily means more or less mixture of blood.

Mr. Crawford made some observations in reply, principally directing his remarks to the objections raised by Sir John Lubbock. *Migrations,*

he said, would not account for the difference in races, though in some cases there must unquestionably have been migration; but sometimes there were existing, even on the same island, tribes so different that they must have been distinct creations.

At the close of the discussion Professor Busk exhibited a skull that had been found within the ruins of a temple in the island of Malta, which was supposed to have been built by the Phœnicians. Two others had been discovered in the same place. This skull had the prognathous character of the Negro skull, but was not so long and narrow as the usual Negro type. He was, however, inclined to assign it a Negro character. He said he should return to the subject on a future occasion.

Thanks having been given to Mr. Crawford, the meeting adjourned to the 9th of January.

The next meeting of the Society will take place on Tuesday, January the 9th, 1866, when the following papers will be read:—

1st. On the Physical Forms of the Lapps, by J. F. Campbell, Esq.

2nd. Notes on the Ethnology of the Indo-Chinese Nations and Tribes, by Colonel Phayre.

3rd. On the Characteristics of the South Slavonic Races, by Miss A. P. Irby.

ANTHROPOLOGICAL SOCIETY.

Dec. 5th, 1865, DR. JAMES HUNT, President, in the Chair.

THE minutes of the preceding meeting were read and confirmed. Eleven new members were elected. A paper was then read, "*On the Testimony of Local Phenomena in the West of England to the Permanence of Anthropological Types*," by Dr. John Beddoe, M.D.

Dr. Beddoe stated that, having for some years been endeavouring to apply the numerical method to the determination of some of the problems of anthropology, and in particular of the question of permanence of types, he long ago conceived the idea that something like a crucial test might be found in the comparison of the population of certain cities with that of the surrounding country.

It is not an uncommon opinion that dark eyes and hair are more frequent in towns than in the open country, owing to some unknown or undefined influences operating therein upon the human race, independently of any differences in the breed. With some, this opinion has taken the formula that civilization has a tendency to darken the average complexion; and it is not long since an article "On the Probable

Extinction of Blue Eyes," which was said to be based on scientific observations, amused the readers of a popular magazine.

It would be easy enough to show that some of the darkest races in these islands are among the least civilized, both materially and intellectually; but there is really some foundation for the belief that in England, at least, there is a preponderance of dark hair and eyes in the towns as compared with the rural districts, and the phenomenon repeats itself in Belgium and Germany in a more striking manner. Thus, at Antwerp, Louvain, Huy, Cologne, Düsseldorf, Münster, Aachen, Brunswick, Leipsic, and even at Prague, he found the citizens darker than the peasantry; and if the contrary is the case at Vienna, and perhaps at Liège and Namur, both cases are easily explicable,—the Liègeois peasantry are a Walloon promontory in a Teutonic sea, and the Viennese are mostly Germans; while the eastern part of Lower Austria remains to a great extent Avar, and certainly Turanian, to the present day.

It would require an intimate acquaintance with the internal or social history of Germany, to enable one to give an opinion as to whether the phenomena observed in the German towns just mentioned are capable of being accounted for by the admixture of alien blood. It somewhat staggered him to find that the difference between the citizens and peasants was most strongly marked at Cologne; for Cologne appeared to be precisely the place, in which one might expect the law of natural selection to operate in that direction. Its close, narrow, filthy streets must be a most unfavourable *habitat* for children; and it seemed to him that the more irritable constitution which so often accompanies the xanthous complexion renders fair children more difficult to rear under such unfavourable circumstances than others.

Any evidence that he had been able to collect in Ireland was rather favourable to the doctrine of permanence of type. The townsmen of Cork and Youghal have lighter hair than the peasantry of most parts of the country; and this is precisely what might have been expected from the history of Danish and English colonization there. Nearly the same may be said of Enniskillen, and perhaps, though with less certainty, of Galway and Killarney. At Sligo he found more dark hair among the citizens. Dublin, Waterford, Wexford, and Kilkenny, all appeared to have populations fairer than those of Ireland in general, as might have been expected; but he had no opportunity of drawing a satisfactory comparison between these four cities and the rural districts around.

From Scotland he had very little evidence. There is more dark hair in Edinburgh than in the neighbouring country, but not more, perhaps, than in most parts of Scotland; and the population of Edinburgh has

always been largely recruited from distant Celtic districts where dark hair prevails. Of 1029 adults, who passed under his observation at the Edinburgh Royal Infirmary, 385 were natives of Edinburgh and other considerable towns; on an average, they had rather lighter hair and rather darker eyes than those born in rural districts and small towns.

In almost all the towns of the Saxon and Danish parts of England where he has made observations, the citizens appeared to be, more or less, darker than the peasantry of the neighbourhood. So far there is no difficulty in accounting for the facts; for, while immigration into the rural districts has been almost *nil*, most of the towns have received accessions to their population from Ireland, Wales, the West of England, or the Continent. The difference between the two classes seems to disappear as we proceed westward, and at Truro is distinctly reversed.

Unable to come to a conclusion upon the data of which this cursory view has been given, he resolved to utilize for the purpose the materials presented in the course of his hospital practice at Bristol; and having amassed careful observations on 4400 adults, almost all patients of the Bristol Infirmary and Clifton Dispensary, he tabulated the sex, birthplace, and colour of the eyes and hair of all of them. The system of division and nomenclature which he has adopted is the same which he has employed for many years, and which his friend, Dr. Barnard Davis, has made use of in the *Crania Britannica*.

He distinguishes but three colours, or rather, as M. Broca says, shades or tones of eyes—light, neutral, and dark—and five of hair—red, fair, brown, dark brown, and black; and in comparing the tendency to darkness of hair in any two sets of people, he takes 100 of each, and then, subtracting the red, plus the fair, from the dark brown, plus twice the black, obtains a cipher which compendiously represents that tendency, and which he calls the *index of nigrescence*. For example, this index is, in the fair populations of Friesland, Lower Saxony, Westphalia, and the Lower Rhine, a minus number; it is so also in some of the Scandinavian districts of our own island. In most of the principal towns of England it varies between 10 and 30; and in the Celtic districts of the far west of Ireland, the Highlands, and Wales, it ranges from 30 to 50, 60, or even 70.

The writer then proceeds to state what are the drawbacks to the value of these data, and concludes that, on the whole, his statistics appear sufficient to disprove the common opinion of the darkening effect of a town life, at least so far as it relates to the hair; while they leave it undecided whether the colour of the iris can be affected by such agency. In the four counties of Somerset, Gloucester, Devon, and Wilts the hair

is darker than in Bristol and the eyes lighter. In the suburbs of Bristol the conditions are reversed, the eyes being a shade darker, but the hair considerably lighter.

A comparison of the four counties named with their respective towns furnishes results of the same general tendency. The towns of Somerset exhibit lighter eyes and hair lighter to an extraordinary degree than the surrounding country. In those of Devon the eyes are darker, the hair rather lighter than in the rural districts. In Gloucestershire the proportions are exactly reversed, and so also in Wiltshire. When the counties and the towns are each taken together, the former exhibit the darker hair, but the eyes are almost exactly the same.

On the other hand, it is satisfactory to note how the bewildering confusion of the figures he has been summarizing, inexplicable, he thinks, by any theory of the influence of extrinsic causes on the physical type, falls into something like order when viewed in connection with ethnographical history and probabilities. These explain at once how it is that the natives of a town, descendants of a shifting and migratory population, almost always tend more towards the general standard of the country than do those of the neighbouring rural districts. The hypothesis, the truth of which few or none doubt, that the invading Teutons were fairer than the prior inhabitants of this part of Britain, explains at once why we find a regular gradation from light hair to dark as we proceed from the Saxons of Wilts through Gloucestershire, East and Middle Somerset, to North Devon, and then to West Somerset and South Devon,—a gradation which appears to him to be attended with a gradual change in the prevailing forms of the cranium,¹ if not of the trunks and limbs. Beyond the Severn, in like manner, the physical type becomes more purely Kymric (or Kymro-Iberic?) as we proceed from the coast towards the mountainous interior. In the coast districts and low lands of Monmouthshire and Glamorgan, the ancient seats of Saxon, Norman, and Flemish colonization, the indices of hair and eyes are as low as 33·5 and 63; while, in the interior, excluding the children of English and Irish immigrants, the figures rise to 57·3 and 109·5,—this last ratio indicating a prevalence of dark eyes, surpassing what he had met with in any other part of Britain.

In laying down the rule that in this part of England the amount of dark hair coincides with and indicates the amount of pre-Teutonic blood, he

¹ The most common form in the West is that which his friend Professor Wilson, of Toronto, in his recent paper on the "Physical Characteristics of the Ancient and Modern Celt," characterizes as the pear-shaped, or British-Celtic type. His own observations on this subject are hardly ripe for publication.

wished to guard himself from being supposed to ignore the differences of type and of race which may have existed before the landing of Cerdic. One of the peculiarities which distinguish the Kymro-Iberic from the Gaelic Celt, or, to put aside theory as much as possible, the pure Welshman from the pure Irishman, is the much greater frequency of dark eyes. Both these races were, he believed, represented in the West of England; nor did he wish to undervalue the possible effects of that miscellaneous and promiscuous colonization of Britain by the Romans, which had been investigated by Mr. Wright with his accustomed ability, and of which he thought he had observed some traces in the course of the present inquiry. The majority of such colonists and of the aboriginal tribes would probably be dark-haired; and, unless we admit that they were so, and that they have transmitted this characteristic to their descendants, he could at present see no possible explanation of the phenomena here presented.

Messrs. Walker, Napier, and R. Lee criticised the paper in a few remarks.

Mr. Carter Blake asked Dr. Beddoe whether the innovation of Flemish blood about Milford Haven still left visible marks of separation between the descendants of the Flemish settlers and the rest of the inhabitants of Wales. He wanted to know whether there was any real difference between the inhabitants of the Haverfordwest district and of the surrounding country.

Dr. Beddoe said he had never visited that district, so could not say much of his own knowledge. Welshmen who came from that district said that there was a distinct line of demarcation near St. Clears, and people who lived on each side of that line did not often intermarry. The people of the south of Pembrokeshire are of fair complexion. He thought that the Flemish had not completely expelled the Welsh from the district; for though Hughes, Rowlands, Reynolds, Phillips, and other patronymics are common, they are intermixed with such Welsh names as Griffiths and Owen.

A paper was then read by Dr. Charnock "On Cannibalism in Europe," which has already been reported in our issue of October last. In the discussion on the paper Dr. Beigel, Mr. Reddie, Mr. Mackenzie, and the President took part.

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ETHNOLOGICAL JOURNAL:

A MONTHLY RECORD OF

Ethnological Research and Criticism.

EDITED BY LUKE BURKE.

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THE
ETHNOLOGICAL JOURNAL.

FEBRUARY, 1866.

PRINCIPLES OF ETHNOLOGY CONSIDERED AS AN
ORGANIZED SCIENCE.

THAT "the Science of Man" is still in an unformed condition,—that it has facts without organization, doctrines without admitted basis, and teachers without recognised authority—is patent to every one who has paid any serious attention to the subject. On every side we have disputed questions; in scarcely any direction can we discover a general agreement; and the only wonder is that, under such circumstances, the science has been able to command the amount of attention which it has already received, and to inspire with a deep and steady interest the many eminent students who are now making it the subject of their most earnest labours. This, of course, is due to its vast intrinsic importance, which makes itself felt in spite of every difficulty; and yet our present estimate of this importance, great as we may deem it, is, assuredly, as nothing to that which will one day be formed.

This unsettled condition, this tedious and struggling infancy, to which the science of man has so long been condemned, is not, however, a ground for despondency, and scarcely even for surprise: it is the inevitability of every great and complex science in its infantile stages; and if it speaks of difficulty, it also speaks of promise and of coming greatness. Even already the dawn of a better day has broken, and year by year—almost, indeed, day by day—the science is steadily progressing in interest and in popularity. From all quarters of the globe materials for its formation are flowing into the great centres of intellectual life, and the various important problems involved in its development are eagerly discussed not only by special students, but in many instances even by the general public.

Still, when we look beneath the surface, we soon perceive that this

bustle of life and progress is simply a preparation for some futurity as yet but dimly foreshadowed. We see materials, but the structure into which they are ultimately to fit is nowhere visible. There are facts in abundance, and discussions without end; but an organized body of doctrines is nowhere discoverable. Such a thing, for instance, as a manual of Ethnological or Anthropological science does not exist, nor do any of the numerous works on the subject, nor all of them put together, supply the elements requisite for the construction of such a manual; and were any one to attempt to draw up a *résumé* of doctrines from published sources, he would find himself arrested at the very commencement by insuperable obstacles, or forced to content himself with a simple summary of disputed opinions.

It is usually supposed that things are thus because the subject is still new, and the materials collected inadequate; and therefore from all sides rises the cry of more facts, and every new mite thrown upon the accumulating heap is as eagerly welcomed as if nothing were needed for the purposes of science but a given amount of detailed knowledge. It is not to be wondered at that the progress of a science should be slow when the conditions of its existence are so imperfectly appreciated. A little reflection will show that the materials of anthropological science are absolutely overwhelming in quantity. On the one hand we have the labours of ages to draw upon: monuments, history, creeds, mythic traditions, literatures, languages, and whole libraries of works of travel, filled with facts, facts often beyond suspicion, because indirect and irrespective of all theorizings. On the other, we have the treasures of modern science: anatomy, physiology, zoology, biology; nay, even geology gives its quota. What we want is the proper use of these materials, the critical power and patience necessary for duly sifting evidence, the tendency to arrange and generalize—in a word, that kind of working which draws upon the higher powers of the mind rather than upon the perceptions and memory. In this field the labourers have been far too few, and yet it is here only that real progress can now be made. We need have no anxiety about the collection of facts: they will come of their own accord, and faster than we can use them. The subject has too many attractions to be neglected in this direction. We can even count on what is of still greater importance; viz., the services of many able men who are already diligently engaged in working out special questions or sections of the science. But all this is not enough. We want to have the entire subject grasped: we require to know its fundamental laws. Let its true nature and bearings be visible, and facts will soon find their places, and sectional workings will have a light, a guidance, and a meaning of which they are at present deprived.

In this series of papers I trust to show that it is now possible to give to the facts of this science a systematic and thoroughly genuine organization,

and to develop the laws on which facts and organization alike depend. If this can really be done, a host of vexed questions are at once authoritatively answered, a multitude of important truths are brought into special prominence, and Ethnology becomes a practical science, the umpire in all social difficulties, a beacon to the legislator, and a salutary check upon the impatience of philanthropy.

To prevent ambiguity in the minds of those who may take up the present portion of this Journal without having read the previous Numbers, a few words may be necessary on the subject of the terms Ethnology and Anthropology, which have of late given rise to so much discussion. However various the definitions which have been given of these terms by different writers, they have finally settled down into simple synonymes. Whether we call ourselves Ethnologists or Anthropologists, we equally require to know why race differs from race, nation from nation, man from man; nor can any jugglery of definition, or any other effort on our part, in the least alter the work which has to be done before we can reach the truth, which is our common aim.

If, for myself, I continue my preference for the word first popularized in this country, I do so without in the least disputing the perfect fitness of the rival term. The word Anthropology, now that its technical meaning has been definitely settled, has the advantage of distinctly announcing the science which it designates; but Ethnology, on the other hand, with equal felicity emphasizes the great pervading idea of this science, while at the same time bidding us look beyond its limits if we would really understand its true laws. It ceaselessly reminds us, whether or not we heed the warning, that the great object of our pursuit is the discovery of the laws of race; that these laws are the same for every living thing; and that, therefore, if we would unravel the seemingly infinite complexities and subtleties of human nature, we must seek for the clue in those broader and clearer facts which general zoology and biology present. The facts, which are microscopic in the narrow sphere of the human world, are telescopic in the great world of life around it; and it is because the word Ethnology perpetually tends to keep all this before us that we, for ourselves, continue to it the preference which twenty years ago it claimed from us for these same reasons.

CHAPTER I.—PRIMARY FACTS AND LAWS.

§ 1. *What is a Living Organism?*

The study of Ethnology is the study of Life, expressly, in certain of its aspects, unavoidably, in all its essential features. The study of life is the study of living things—the study of living structures; and a living struc-

ture which is complete and self-sufficing as an aggregate, and which, under given external conditions, can maintain an independent existence, and go through the essential cycle of vital phenomena, is termed a living organism, being assumed to be a more or less complex aggregate of special parts or organs, each of which has some determinate share in the production of the aggregate phenomena. Rigidly, the term organism is only applicable to the more advanced forms of life, but practically it embraces every form, however simple; for as all existences have been divided into organic and inorganic, and as these terms are equivalent to vital and non-vital, even the simplest of living things becomes thus an organism.

If we examine a living organism in any of those cases in which some considerable portion of its structure comes fully within the reach of inspection, we find that it is a wonderfully elaborate and beautifully perfect mechanism, and that it differs from other mechanisms not in doing anything inconsistent with the laws of mechanism, but simply in illustrating those laws in modes so varied and exalted as immeasurably to distance all human power of competition. Where its structure is clearly visible, every portion of it is unequivocally mechanistic: where its minuteness eludes inspection, the function and the result produced are still mechanistic, and as such reveal the nature of the structure; for, as only like causes can produce like effects, only mechanism can produce mechanistic effects.

A mechanism of human construction performs, and often in a very beautiful and perfect manner, certain determinate functions: it may even be made to supply itself, to some degree, with force for its action and material for its work; but beyond this its capacity will not go. A living mechanism, however, does all this and much more. It not only does a variety of work, and not only supplies itself with power and material, and keeps itself in a fit condition for work by ceaselessly cleansing and repairing itself, but it actually *makes* itself, and in its higher forms protects and guides itself; and not only this, but it further makes a succession of mechanisms like itself, and feeds, protects, and guides them until they are in a condition to feed, protect, and guide themselves. Nor is there anything in these phenomena which has the slightest appearance of being non-mechanistic; on the contrary, they simply present to us mechanism in its highest ideal. They simply mean that there are two categories of mechanistic structures, the vital and the non-vital, and that the former are by far the higher and the more complex.

But if all this be true, then it necessarily follows that the entire superstructure of a correct Ethnology, of a true knowledge of human nature in its myriad diversities and relations—in a word, of the whole vast cycle of the Science of Life—must be based on the fact that a living organism is a living

mechanism, and as such subject, and exclusively subject, to mechanistic laws in its origin, development, structure, and functions. But if this be the case, our task, vast and difficult as it seemed a moment ago, is virtually accomplished at the very first step ; for assuredly mechanism is a very simple matter, a matter which involves no mysteries, and of which the fundamental laws and facts are amongst the most familiar of our ideas.

But in this case, it may be said, why then are we groping in the dark, struggling with superhuman difficulties, battling, as it were, with heaven and earth, to tear from them their secrets, if all the while those very secrets are lying at our feet ? The argument proves too much. From this point of view it certainly seems to do so ; but it is very clear from the other. We must look into the matter more closely, then, before we can venture finally to decide that a conclusion which opens so bright a prospect does really prove too much, and is therefore an illusion.

It by no means follows that that which is lying at our feet is sure to be perceived, or that the simplest of problems is the first that will be solved. If we believe that that which is at our feet is a great way off, we shall assuredly step over it : if we are looking for difficulty and complexity, the simplicity before us has no meaning. And this is what we usually—nay, always—do, until experience gradually opens our eyes and makes us wary. Every mechanist knows that the best plan is ever the last to present itself, and that he has to travel mentally or experimentally through numberless difficulties and complexities before the easiest and the simplest of contrivances is finally struck out ; for perfection is but one, imperfection infinite. There is but one direct road to any given point, but it may be reached by an infinitude of curves and zigzags. The balance of chances, then, are enormously against our first taking the true road to the secret we are in search of. And then, again, ignorance comes before knowledge, groping before steady progress, perception before reason, and misty dreaming before clear thought. It therefore by no means follows that obstacles which have proved insuperable while confronted in one direction may not yield readily when assailed from another.

There are but two categories in nature, the simple and the complex ; and complexity is but the repetition of simplicities. The complex, therefore, has nothing but what the simple gives it. Clearly, then, if we can reach the simple, and ascertain its properties and laws, we have at once the key of the complex, and all that is then needed for its full comprehension is time, and patience, and steadiness of thought. But we may grope about eternally among complexities, and be no nearer the truth at last than we were at first, if we rest content with the study of details. Who but a geometician would dream of the possibility of measuring the size and distance of the luminaries of heaven ? and yet when we have

developed the properties of the simplest of all rectilinear forms we find ourselves in possession of this god-like power.

There are numerous cases in which it is easy for us to study simplicities: the subject in hand is one of these. Until the trial be made, who can have a right to set limits to the power which success may confer? If three lines meeting in three points have contained the wonderful story of trigonometry and its achievements, what marvels may not lie hid in the loftier, yet still simple phrase, "a living mechanism"?

When we look around upon nature, and mark the endless diversities of form which meet the eye, does it not seem at the first moment a hopeless task to reduce that vast but yet beautiful chaos into anything like system? And yet, vast as it is, all its actualities, all its possibilities, are expressed by two words—*curvature* and *straightness*. The most complex as well as the simplest, the most beautiful as well as the most repulsive forms are equally but the commingling of these two elements. Given the triangle and the parallelogram, the circle and the ellipse, and we exhaust the proximate elements of superficial form; and given the prism and the cone, the cube and the cylinder, the sphere and the ovoid, and we equally exhaust those of solid form. All else is but interblending—regular or vague, harmonious or discordant, as the case may be. Beyond this Nature herself cannot go. The brightest luminary in heaven, the deepest abysses of the universe, can contain no form of which we have not here the analysis; for, in this direction, curvature and straightness are the limits of possibility: remove them, and there is nothing; try to add to them, and you but utter jargon, and finesse with contradictions.

Here, then, is a branch of knowledge, a section of the universe, so to speak, laid bare, and yet we find no mysteries: all is simple and familiar thought. May not, then, other branches of knowledge, other sections of the universe, admit of similar treatment and with similar results?

The sphere of colour at once gives an affirmative answer: like the world of form, it analyzes its beautiful diversity into a small number of proximately simple tints. The spectrum says seven, but these clearly resolve into three, while it is more than possible that we shall ultimately find that two is the radical number.

So, too, is it with sound: however varied the combinations, we see from the modes in which they are produced that their elements must be to the last degree simple. All the diversities of human speech reveal but a small number of distinct articulations, which presently coalesce into a few groups, and these again, apparently, into two primary ones, labials and linguals, or labials and gutturals. All the wonders of music are but modifications of the octave, and the octave divides into two equivalent halves, and these again into diatonic or regular intervals, and chromatic or intermediate

intervals, while all the properties of the scale seem to be comprised in the fundamental and the fourth.

And now let us turn to mechanism. What do we find in the most elaborate and perfect of human adjustments? What are our wheels, and cranks, and pulleys, and cords, and screws, our pipes, and valves, and pistons, and rushing fluids, our various working implements, hammer, axe, plane, &c., &c.? Simply contrivances for the disposal of force; and all these contrivances resolve themselves into two primary modes of this disposal, the rectilinear and the curvilinear, exactly corresponding to the two primary elements of form. The *piston* may be taken as the symbol of the one, the *lever* of the other; the former appropriately typifying the simplicity, or absence of structure, which distinguishes fluids, the latter the infinite elaborateness which solidity permits. The piston works in a straight line, the lever necessarily describes a curve. There is no third term discoverable, no other mechanical power.

But now comes an objection and a difficulty, an objection and a difficulty which many will feel to be of primary importance. What, it will be said—what of *traction*, of *elasticity*, of *attraction*?

Traction, apart from elasticity, is easily disposed of. The band or cord which turns a pulley is virtually a flexible wheel or series of cranks; and we know that the action in all cases is a *push* on the point immediately pressed, never a *pull*, since a pull would imply adhesion to the point touched, and here there is only contact and pressure, not adhesion. If it be said that the weight attached to the cord *pulls* it downwards and does not *press* it downwards, and that the successive portions of the cord, as we ascend, similarly pull the portions above them, we have only to substitute a simple chain for the cord to bring into clear vision the entire sequence of causation. We then at once see that throughout it is downward pressure, without the shadow of any traction as distinct from propulsion. The ring of the weight so rests on the lowest ring of the chain that the action is precisely the same as if the weight was above instead of below, and this ring similarly presses on the ring above it, and so on. All is simple pressure, and the idea of traction as distinct from propulsion is a mere delusion.

In the case of elasticity we see that in innumerable instances it is simply a result of compression. A solid is forced from its natural position, or a fluid is forced into a smaller space than it would naturally occupy, and both tend to regain their normal conditions in proportion as the force is removed. If there are other cases which are less clear than these, we must remember two important considerations: first, that the difficulties present themselves only where structure is invisible to us, and never where it is clearly discernible; secondly, that traction, as distinct from propulsion, is not only

unknown as a matter of fact, but also inconceivable, and furthermore a direct impossibility, since it implies a contradiction in terms, as will presently be seen.

Force is a term which expresses moving entity. It has no independent existence; it is not a thing *per se*: it simply differs from the term *motion* by having reference to the *quantity* of the entity which is moving, and the *intensity* of the motion. Where there is no motion, then, there is no force. A body at rest is wholly without force, and can neither move itself nor anything else, one way or the other, by propulsion or by traction.

Force, then, is motion with additional considerations. Its direction, therefore, is always in the line of motion; and only a moving body has any force, and only in the line of its motion has it any force. If it gives motion to any other body, it can only give it in the line in which it is moving. It can only, in a word, give it a *push*. To give motion is to part with motion: to give force is to part with force. To give these partially is to continue moving with diminished rapidity and force: to give them wholly is to stand perfectly still, motionless and powerless. This is the inevitability of things: it is equally the sum of all our knowledge of the actualities of nature; all else is simple contradiction and bewilderment.

And yet our philosophies are full of the idea of attractive forces. We believe that the entire universe is kept together by them, and deem the law of universal gravitation—the law that all matter attracts all matter—the greatest discovery of modern times. And yet this law simply means that a body which has no power has power and can give power—that a body which has power in one direction only has power and can give power in every other direction also, and all at one and the same time. It means that a body can give what it has not got to give. It means that motion and force are and are not, at one and the same time, distinct and independent entities. It means that force, which has no separate existence, can nevertheless be sent from one distant body to another without any intermediate body to convey it, and sent, too, by a body which has got none of it to send, &c., &c., *ad infinitum*; and so of motion also.

This is the sum of our philosophies of attraction: this is what the greatest discovery of modern times amounts to. It is surely high time to look for some more solid foundation for the edifice of our future philosophies.

Did Nature really possess a power of attraction, properly so called, and was this power universally diffused, how could it escape detection in the case of phenomena fully open to inspection? or how could it happen that man had no means of using it, or producing it in his own works? or that his reason, which is clearly in harmony with Nature, is incapable of con-

ceiving of such a power, but, on the contrary, is compelled to view it as a direct and self-evident contradiction?

It is clear, then, that the illustrious propounder of this theory stopped short at appearances on his way downwards to the rock of primary truth, and accepted as a fact what could not be comprehended as a fact, and, after all, was not proved to be a fact; while his successors, dazzled alike by the splendour of his genius and the magnificent prospects which a great universal law was so well calculated to open up, too readily accepted his seemingly happy suggestion. The consequence is, that the laws of the celestial movements have still to be discovered, and that a single error has for centuries checked the progress of one of the grandest of the sciences.

And yet all the while, in other directions, scientific men have been fully alive to the realities of the laws of motion; perfectly aware that there is no possibility of creating force, that it can only be transferred, and only transferred in the line of its direction; perfectly aware that to give force is to part with it, and that to give it without possessing it is nonsense; perfectly aware, in a word, that there is no transference of force without contact, and that bodies separated by pure vacuity cannot act on one another at all. I merely ask that this clear knowledge shall be universally applied, and that we shall not contradict in one portion of our philosophy what we so emphatically affirm and so clearly prove in another.

It is perfectly plain, then, that however little we may understand the *modus operandi* of nature in those portions of her works in which she presents to us the phenomena of apparent attractions, that all such phenomena are but unseen propulsions, the rush towards a vacuum, the pressure of ethereal media, or the elasticity produced by peculiarities of structure. It is our business to search for their causes, or to recognise our ignorance, and wait for future knowledge; but it never can be our business to accept appearances as great primary facts, in the absence of all proof, and in defiance of all known laws.

Thus mechanism, like form, in its highest as in its lowest aspects, is but the repetition of two primary simplicities. It is an instrument acted on by a force, and distributing that force either by direct impulse or by some form of circularity or leverage. Scrutinize as we may, there is nothing more to be found. Let us add complexity to complexity even to infinitude, and still we but repeat and blend the same elements. As far as human mechanism is concerned there is clearly no mystery, no difficulty. Ingenuity has scope for adjustment, but none for creation. The variety is in the combination, not in its elements or laws.

Thus far for man: how stands the case with Nature? She also is a mechanist: what are her materials, her elements, her laws? Clearly she can have no other than those we have already described. Her materials

are the various kinds of entity, her forces are their movements, her modes of distributing those forces are the same as ours, for they must resolve themselves into rectilinear distribution or curvilinear distribution. Where her constructions are sufficiently large and solid to admit of satisfactory inspection, we see levers, and cords, and bands, and pipes, and valves, and rushing fluids, but nowhere a new idea. She constantly brings us to a dead stop by her subtlety, her complexity, her vastness, her transcendent skill and power; but where she does reveal herself she but gives us back our familiar thoughts. Surely, then, the best and speediest mode of penetrating her secrets is to study those primary facts and laws of which both she and we must equally and similarly make use. Already we can clearly limit her possibilities in many directions. Fundamentally, we know all that she can possibly accomplish in the sphere of form, in the sphere of colour, perhaps also in the sphere of sound. We know that her highest product is a mechanism, and that her lowest is still the same. Let us follow out this mode of working; let us search for the simplest forms of familiar phenomena; let us penetrate down to the primary rock in as many directions as possible, and then build boldly upwards.

None can precalculate the wonders that may be the product of such workings, and still less is it possible to set limits to those wonders. We know that our instruments have rigid bounds, that no tube that will ever be mounted will bring within our range the deeper abysses of heaven, and that no delicacy of manipulation will ever reveal the subtler workings of chemistry or thought; but reason knows no limits. For the grasp of law there is nothing too great and there is nothing too small; nor has Nature any secrets which she can permanently withhold from the clear steady gaze of Mind.

The universe is not a heap of fragments or of accidents, but a great unity. Within, a supreme mechanism or assemblage of mechanisms: without, the vast abyss of inorganic being—the great storehouse of material and of power. In both, a fundamental unity; for the one ceaselessly passes into the other in the eternal round of life and organism. Why, then, should we not understand them? Only where there is mechanism is there orderly interaction: only where there is vital mechanism is there growth, self-evolution, self-regulation. The laws of the aggregate must be the laws of its parts, and the vaster and more complex the aggregate, the simpler and more uniform must be its laws, otherwise discordances innumerable would be the consequence; and, besides, the spontaneity of life means the universal oneness of its laws, since this spontaneity is an expression of the inherent necessities of being and action.

Why, then, should we not understand the universe when every living thing is its image, and all the higher forms of life give clear expression of

its attributes? Mechanism, chemistry, mind, and the unarranged—what else does it or can it present to our view? We have seen that there is but one mechanism: it is equally plain that there is but one chemistry and one science of mind. We have but to dissect resolutely downwards, and we shall, ere long, reach those few primary terms which enclose the entire mystery of being.

Let no student of physical science say that this dissection does not concern his special pursuits: it would be a grave error. Above all, let not the Ethnologist or Anthropologist say so. Until it be made we are but mariners on a vast ocean, without compass and without chart; tempest-tossed if we venture out to sea, hardly more safe if we creep along the shore, and, at the best, requiring ages to accomplish a journey which, with better provision, might be but the work of days.

A single illustration will sufficiently show how the development and application of law may settle, in a moment, decisively and irrevocably, difficulties which otherwise seem insuperable, or which for ages may have taxed ingenuity in vain. The point in question will have to be examined and discussed in detail hereafter: we must here allude to it very briefly.

We have seen that a mechanism, however elaborate may be its contrivances, has but two essentially distinct modes of disposing of force: the direct and the curvilinear. In another aspect it also presents us but two ideas: those of instrument and force. These ideas are broadly distinct under every point of view: distinct in their nature, distinct in their functions, distinct as to their relations to structure. The instrument—the machine itself—may be complex to any extent: the force is intrinsically simple; it consists in the mere push. No matter whether the push be given by a simple or a complex body: the push itself is a simplicity in the sense in question, and all its power resides in its momentum, and not in any structural peculiarity of the body giving it. Whether this body be a railway car or a child's toy, a magnetic battery or a stream of air, water, or steam, matters not in the least, provided the impulse be the same.

The functions of these two elements are equally distinct. The force gives its propulsion to some determinate portion of the machine, and there its function stops. It has nothing whatever to do with the further disposal of what it has given. That depends wholly on the machine, and varies in exact relation with its nature. The more elaborate the mechanism, the more is the force cut up, as it were, and distributed about: the more simple the mechanism, the fewer the dissections and the more limited the sphere of distribution. All this is perfectly clear. A child may comprehend it. There is no room for mistake or ambiguity anywhere. And yet we shall presently see that these utterly common facts—facts which the clown understands, in his way, as well as the philosopher—are nevertheless

great and pregnant truths, truths which touch the highest and the deepest questions on which human ingenuity can exert itself.

We may now advance a step farther. Mechanism may do something more than distribute force; or, rather, in distributing force it may also distribute material. Thus, a loom draws in and distributes a thread of wool, or flax, or cotton, or silk, or such-like material, and, in doing so, turns out a woven fabric, simple or elaborate, plain or beautiful, uniform in tint or variegated in colour, according to the nature of the machinery or the quality of the material.

Now, in this aspect also we have two factors—the mechanism, and the material acted upon. And the functions of the two are, as before, perfectly distinct, or, rather, we should say, one of these elements has no function at all: it is simply passive in the hands of the mechanism and the force. By the aid of the propulsive force the mechanism becomes an active power: by its own structure it becomes an ingenious power; it takes this external material, draws it into itself, and variously distributes and combines it. The fabric woven derives its quality in part from the intrinsic character of the material; but it derives its pattern, its woven structure, its manufactured attributes, from the mechanism exclusively. The material has nothing whatever to do with these. Whether we give wool, or cotton, or silk, the pattern will be the same. All this, too, is perfectly clear. If we want to alter the pattern, we must modify the machinery. We cannot obtain the alteration by varying the force or material: these factors have no competence whatever in this direction; but they have, however, a certain power of injury. The force may be great enough to injure or even wholly to destroy the machinery; while the material may clog it, and finally stop it altogether. But this is all they can do: they have a capacity for mischief, because, in this case, mischief simply means the action of brute force and matter; but they have no capacity for improvement, because improvement involves conditions which are foreign to their nature, and which, besides, only mind can give.

Vital mechanism, under conditions of far greater complexity, presents us with exactly the same fundamental ideas. Under one aspect it gives us mechanism and force; under another, mechanism and material. In each case, as in the previous illustration, the supply of force and that of material are external to the mechanism. In each case they are simplicities in their relations to it. There may be many different kinds of force acting on a living mechanism, but each, *in so far as it is a force*, is simply a push, and has no agency whatever in determining the kind of work done. The same forces act in precisely the same manner on ten thousand living machines, and yet all the work done, all the patterns woven, are different, to a greater or less degree; and the difference has no relation whatever to the

forces, but depends wholly on the structural peculiarities of the machines themselves. So with the material. Many different materials are dragged into these living machines; but, *as materials*, they are all passive, and are pulled about resistlessly, and deposited here and there by the acting mechanism, in precise accordance with its nature. And, as before, the self-same materials are drawn into ten thousand different machines, and yet the pattern woven differs in every case.

But it so happens that in living organism power and material nearly always coalesce. Once drawn in, the material becomes a force, by meeting something which acts chemically upon it. But this only leaves us our two elements still: force where we had none before, and material in an altered condition. We have not introduced any *tertium quid*. We have merely decomposed material and distributed force. Our chemistry has no function beyond that of composing or decomposing material and liberating or condensing force, all in subtle and infinitesimal modes; and these materials and forces, when so treated, are disposed of in precise relation with the aggregate character of the machinery. We have not altered the problem in the least. All the elements are the same; all their capacities are the same; all their relations are the same—mechanism, force, material. Let us search for a thousand centuries, and we shall never see anything beyond; for there is nothing in the universe beyond this triad of material, force, and structure, and nothing in the universe can alter their intrinsic relations or capabilities.

If we look to the matter of fact, we shall find that all nature repeats in deeds what we here have given in words. For instance: here are two tiny globules, invisible to the naked eye, and even the most powerful glass can detect no structural difference between them. But they are, nevertheless, wonderful little machines, and, small as they are, they differ very decidedly, as is evident from the patterns which they ultimately work out. When effects differ, causes differ. Well, these little structures are very fragile, and require great care. Nature, consequently, has taken charge of them, and in this case in a manner not only similar, but to all intents and purposes identical. Placed in the same kind of tenement, exposed to the same influences, acted upon by like forces, fed with like material, ultimately each accomplishes its work, and the pattern which one turns out is a *man*, and the pattern which the other turns out is an *elephant*. Who will venture to say that the difference depends on the external conditions, and not wholly on the original working structure, the tiny germ? Vary the conditions as we may, nothing but a man will ever come from the one receptacle, and nothing but an elephant from the other. If nature produces this wonderful fabric under conditions so simple, if she varies it so much under conditions so identical, if an infinitude of patterns are

worked out under external circumstances virtually the same, it would be clear that the cause is in the mechanism and nowhere else, even if it were not clear that force and material have no such power.

Once, then, that the germ is formed, the future structure is predetermined. External nature is asked for material and force only : the pattern belongs exclusively to the machine itself. Force and material may injure, they may distort, but they have no competence to produce balanced and harmonious readjustments.

There are, of course, many subtle questions and many curious difficulties to be considered in reference to this matter, but they do not and cannot affect the bearings of the argument. It is a problem of only three elements, and the nature and capacities of each are fully ascertained.

The conclusion here arrived at is in harmony with all known facts, and yet universal opinion has been dead against it for ages. To a greater or less degree, all have admitted the modifying power of external influences, some restricting it within the limits of species, some assigning to it no limits, but all giving it the capacity of producing harmonious, correlated, and healthy changes, to a greater or less extent. In the theory of Lamarck these positions are carried out into wild but strictly logical extravagance : in the theory of Mr. Darwin we have them in homœopathic doses and spread over limitless time; but in the long-run the argument and results are the same.

Of course it is only when phenomena are taken in the gross, in great complexity, and without adequate criticism or adequate analysis, that conclusions so absolutely baseless, contradicted by the universal voice of facts, and going dead in the teeth of all reason, by assigning to non-intelligent causes mechanistic changes and correlations which only intelligence, and only intelligence of a vastly high order, could be competent to produce; it is only when we thus work in a mist, and seek to explore a trackless labyrinth without an adequate clue, that such conclusions could possibly find favour. Hence the supreme necessity of method and law to aid our feeble powers. Gods may see the reality of phenomena at a glance, be they simple or complex; but the brain of man totters like an infant and grows dizzy in the presence of a great complexity, and, if he would not fall, he must seize with a firm hold on some unshakable fact or law, and patiently, and, above all things, methodically, proceed to unravel the tangle.

In these illustrations I do not attempt to trace the proximate causes of vital differences, or to explain how progress is compatible with this comparative impotence of external agencies : all this will be fully considered in subsequent chapters. My purpose here is simply to show how readily an appeal to primary facts and laws may throw a broad clear light where all before was difficulty, uncertainty, or baseless theorizings.

(To be continued in our next.)

L. BURKE.

THE ETHNOLOGICAL JOURNAL.

MANY of our readers, we doubt not, will learn with regret that with the present Number of the Journal we are under the necessity of announcing a change of plan : some of them, we trust, will be able to look sufficiently beneath the surface to accept this change as an actual improvement ; but, improvement or not, the change has been forced upon us. The support thus far accorded to the work, though in many respects very encouraging, especially within the last three months, has been far too limited to meet the requirements of the occasion, and we have therefore had to choose between an entire abandonment of the undertaking and some less costly mode of carrying it on. The few friends who have taken a serious and immediate interest in the project have not found themselves adequately seconded, and have been compelled to hesitate in the presence of what, for a few, would be a somewhat costly experiment. Coming, as it did, at a critical moment, at a period of conflicting claims, it was naturally supposed that Ethnologists would have gladly availed themselves of the advantages which such a work obviously offered ; but, failing to do so, all rational hope of success was at once barred by the very plan of the enterprise. In deference to the advice of friends and to the existing tone of thought, we forbore to draw on the magnificent resources which the science actually possesses, and were willing that the work should be made a simple convenience for the student, though well aware that, as such, it could offer but moderate attractions to the general reader. Failing, therefore, to awaken a sufficient interest in the class specially addressed, we necessarily failed wholly.

Unwilling, however, to abandon an undertaking in which we still have faith, and naturally clinging to a subject which, in one form or other, has been the serious pursuit of half a lifetime, we have turned our attention to such a modification of plan as shall draw forth the inherent interest of the subject at a greatly diminished cost both to ourselves and the reader. This is the utmost that it would be prudent to venture on at present.

Did the Science of Man present itself to our minds in the light in which it seems to stand both to the general public and to the vast majority of its students, the idea of establishing a journal for its cultivation, with any resources that we could hope to bring to bear upon it, could never have presented itself to our minds, nor, indeed, notwithstanding our natural leaning towards the subject, do we well see how we could have made it the object of a special study. But from the beginning it assumed to our view a widely different aspect, and at the present moment it stands before

us as one of the grandest and by far the most important of all the sciences, with one sole exception, that of the science of sciences—Cosmology.

We now propose to place it in this new light before our readers. It is, to be sure, but a miserable mode of dealing with a great subject, thus to cut it up into monthly slices—tantalizing the inquirer, breaking the connection of ideas, and doing as little justice to writer as to theme; but there is no help for it: it must be this or nothing. He who thinks with his age may calculate on sympathy and co-operation, especially if he deserve them in any signal degree; but he who has the misfortune to be the maker of his own thoughts, and to think out of harmony with the settled convictions of his time, will look in vain for preliminary sympathy or encouragement, unless wealth or position have made him independent of them. And thus, even in this nineteenth century, new sciences may easily go begging, not because they have been tried and found wanting, but simply because no one cares to listen to their claims. This is why we propose to lay the foundations and trace the magnificent outlines of a great and virtually a new science in this miserable fashion.

We feel bound, too, to do everything in our power to continue this Journal, as well that the efforts and contributions of its supporters may not be thrown away, as because such a work must become, by degrees, of eminent service in the further development and establishment of the science; and, despite the difficulties and discouragements inevitable to innovation, we know that there are minds in the world ever ready to sympathize with truth, be it new or be it old; and that there are others who will warm and light up, once that the ice of custom has been broken, and that the scales have fallen from their eyes. We know, too, that the spell of curiosity will hold some over whom we may have no other power; for there is a newness, a vastness, a fascination in the theme as yet but little suspected; and, however lightly its truths may sit on some minds, they will assuredly awaken serious thoughts in others. It is on these convictions that we build: our only doubt is, shall we reach such readers soon enough?

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THE
ETHNOLOGICAL JOURNAL;

A MONTHLY RECORD OF
Ethnological Research and Criticism.

EDITED BY LUKE BURKE.

No. IX.—MARCH, 1866.

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THE
ETHNOLOGICAL JOURNAL.

MARCH, 1866.

PRINCIPLES OF ETHNOLOGY CONSIDERED AS AN
ORGANIZED SCIENCE.

CHAPTER I.—PRIMARY FACTS AND LAWS.

(Continued from page 363.)

§ 2. *Mechanism and Causation.*

HE who first invented an alphabet, supposing, for the moment, that any one mind had ever an exclusive property in that great and beneficent result, felt himself, no doubt, engaged in a very delightful and exciting pursuit; but, of the many myriads who have subsequently had the comparatively easy task of engraving on their memories the few simple symbols of his laborious analysis, how few have found the study other than a disagreeable though necessary drudgery! I am keenly aware that, in the course which I am pursuing in the present series of papers, I am placing myself and my readers in an analogous position, and with a superadded disadvantage. To myself, indeed, it is a very delightful task to be adding my contribution to the formation of an alphabet which will one day work wonders in the world of Science; but to ask of others to take the trouble of examining and committing to memory the symbols here selected or invented before they have proper faith in their genuineness, or confidence in their teacher, is very uphill work indeed. The rudiments of a demonstrative science are sufficiently dry, under the best of circumstances, for all but thorough devotees, and it seems a vain, not to say a fatuitous hope to expect them to be adequately encountered by those who can have no preliminary faith in their soundness.

Still, with all its obvious drawbacks, the course here taken is not only the one which best suits the actual emergency, but is intrinsically the best and most practical that could be adopted, notwithstanding the many

imperfections that must mark its execution. Such a course will effect in a few pages what might otherwise require volumes, and not be attained after all. The method can have little attraction for the casual reader, especially at first; but science, like life, has its toils as well as its pleasures, and to toil only will it yield its substantial rewards. And when, besides, it happens that a little toil, well directed, may save ages of fruitless labour, it would be madness to hesitate. I hope to satisfy some, at least, of my readers that it will do so in the present instance. They are well aware that whole libraries of miscellaneous workings have already been expended on the theme of human nature, and yet that the very foundations of the science of man have still to be laid; I here propose to show that these repeated failures have not resulted from want of knowledge, but from imperfect methods of dealing with what was actually known.

The previous paper has set forth the fundamental facts and laws of mechanism, whether vital or non-vital. We have seen that the ideas essential to a mechanism are simply two: agency and force—the thing which acts and its power of action. These we may combine indefinitely to any amount of complexity and still leave the definition unimpaired. Everything in nature is, in this sense, a mechanism, from the primary atom to the aggregate universe itself.

From this description it is plain that mechanism is but another term for causation; for a *cause* also is simply an agent acting with a force. The only difference is that we use the word “cause” when we have special reference to the work done, which work we term the *effect*, while we use the term “mechanism” when we mainly refer to the agent itself, and chiefly

- when we refer to agency of an exact and complex character. But no difference exists between the two, either as regards the actor or the action; and it is clear therefore that the laws of the one are the laws of the other. The most elaborate mechanism in the universe is but an aggregate cause, while the simplest cause in the universe is but an elementary mechanism. There is nothing therefore in the universe but mechanism. No laws but its laws, no actors but its actors, no forces but its forces. When it is varied, either in nature or structure, its powers are diversified; when it is great its powers are intensified; and when it possesses every possible excellence of nature and of structure, it is omnipotent. We are here evidently touching the fundamental facts of being. If they be touched wisely, they will let in a flood of light on every sphere of knowledge, as well as on that of our special pursuit.

Thus, then, this terrible and dry word “*causation*,” which is enough to frighten some readers from any page in which they see it lurking, and which metaphysicians have enveloped in whole volumes of incomprehensi-

bilities, is really but an expression of one of the simplest and most familiar of our thoughts, while the word "mechanism," even more terrible in certain conjunctions and scarcely less puzzling, is but the same idea from another point of view. And so we shall find things go throughout, in proportion as we reach the exact truth. It is only ignorance and error that are vague and mysterious; the essential attribute of truth is lucidity.

Viewing causation as power, its leading idea is capability—fitness. That which has done a thing must have been capable of doing it, and of doing it in the exact manner and degree, and under the exact circumstances in which it was done; for otherwise it would have done that which, under the circumstances, it could not do, which is a contradiction. So, too, with the idea of fitness, which is but capability under another name or from another point of view. An agent acts according to the speciality of its nature and circumstances. This speciality is its particular fitness or capacity for this or that kind of work; and as this fitness varies, so varies the work—the *effect*; hence the great practical law—*Only like causes can produce like effects*—a law absolute and universal, ruling in every sphere of being, and nowhere admitting of exception; for an exception would be a contradiction in terms. To be able to apply this law universally would be to hold the keys of all knowledge, with the power of using them; but only in proportion as we *do* apply it is our knowledge of phenomena accurate. We shall often have to appeal to it in the course of the present inquiry. Before going farther, however, we must also define a few other necessary terms.

The term *entity*, or being, is a very useful word, as it permits an affirmation to be made absolute and unequivocal, in cases in which other terms might be liable to ambiguity by being connected with disputed positions.

ENTITY, or being, then, is that which exists in itself and irrespective of other existences. It is, therefore, not a force, nor a condition, nor a quality, nor an attribute, nor a relation, but that of which these things may be affirmed. It is not motion, but that which moves; it is not power, but that which has power. It is *Being* itself, and apart from it there is nothing. Other existences are but its attributes, conditions, relations, phenomena.

CONDITIONS OF ENTITY.—Every entity must exist in one of two conditions. It must either be in motion or at rest: there is no other alternative: rest is the negation of motion, motion of rest: the denial of one is the affirmation of the other. There are other conditions of entity, but they do not interfere with these two; on the contrary, they imply one or other of them. Entity may be fluid or solid, structural or non-struc-

tural, percipient or non-percipient, and so on ; and these various conditions will be considered as we advance ; we are now only concerned with these two radical ones which are acknowledged by all others, while they themselves acknowledge nothing either above or below them. Motion does not imply fluidity, or perceptivity, or life, or consciousness, &c., &c., but all these imply motion ; and so with their negatives as regards rest.

PLACE OF ENTITY.—As entity must exist in some condition, it must also exist in some *where*, in some place, in some space. Place and space, therefore, are not entity, nor conditions or properties of entity, nor any reality whatsoever ; they merely express the emptiness which entity fills or might fill. They are purely terms of negation.

TIME.—Time is duration, continuance. It is the stay which entity makes in any of its conditions, or it is stay or continuance irrespective of entity. Like space, it is a term of relation merely, and has no reality corresponding with it. The necessities of language often compel us to use these terms as if they implied actual realities of some kind or other, and this figurative language has often bewildered feeble or incautious thinkers in their speculative reasonings, but only in these cases ; in practice no one is deceived by such phrases. Thus we often speak of *some* time and no time, of this *portion* of space and that portion, of time *reaching* backwards or onwards eternally, of space stretching infinitely outwards from some given point, and so on ; but all this is mere painting : the mind uses words or ideas as the painter uses colours ; the colours are real even when the picture is a pure fiction, and so are the materials on which the mind works, however fallacious may be the portraiture. A want of due attention to this obscure rock has shipwrecked many a promising enterprise.

SUBSTANCE.—By the word “ substance ” we here mean entity in its very reality, and without any reference to its kinds or subdivisions. The word, therefore, as here used, is not synonymous with matter, or exclusive of spirit. There may be two or many kinds of substance for anything which this term affirms, and matter may be one of these and spirit another, assuming that both are distinct entities. In this case matter is substance, and so also is spirit ; and nothing but substance has any reality. The terms substance and entity therefore only differ in this, that entity speaks without any reference to its attributes, while substance always implies certain of these attributes. But all that is affirmable of the one is affirmable of the other.

IMPENETRABILITY.—Substance occupies space, and no two substances can occupy the self-same place, since it is emptiness only that entity occupies, not fulness ; and a space already occupied is full, not empty. Of

course, if a substance leaves empty spaces between its particles, another substance may fill those spaces, and thus two or more substances may occupy the same aggregate limits; but every atom of all these substances has a place exclusively its own. This exclusiveness has been expressed by the term *impenetrability*—not a very happy term, since it implies hardness and resistance, ideas not at all in question in the point under consideration.

DIMENSIONS.—Every substance has dimensions, whether great or small; and these dimensions extend in three directions—in length, in breadth, and in thickness. The absence of dimensions is a mere idealism, invented for the purposes of geometry, and there very useful; but the application of the idea to actual realities is a mere absurdity, for to deny dimensions to an entity is to deny it place, to deny that it exists anywhere, which is denying its existence while yet affirming its existence.

FORM.—Every substance, not infinite in extent, has surface; and the variations of surface are form, and the elements of form, as stated in the previous paper, are two—straightness and curvature.

DIVISIBILITY.—All substance large enough to be operated upon is capable of subdivision, and no substance is so small that the mind may not conceive it as subdivided, and then conceive its parts as severally subdivided, and so on for ever; and this is what is termed the “infinite divisibility of matter.” But all this is mental working, ideal painting, the bandying-about of words. Nothing of the kind can take place in nature. Nature is a mechanist, and can only work with determinate materials. An atom infinitely small is no atom at all; and no number of such atoms could ever make an appreciable quantity. We shall find that nature has commenced with excessively small particles; but there is every reason for regarding those as terminal, and placed beyond the reach of subdivision by their very minuteness.

CREATION.—Had there ever been a time when nothing existed, nothing could have subsequently come into existence. In the first place, there was, by hypothesis, no cause of existence; in the second place, to come into existence, to appear, to occupy a space before void, &c., &c., are all terms which imply action, force, phenomena, change, &c., &c.; and all these are properties or conditions of entity, and cannot exist where entity does not exist, and by hypothesis it did not exist in the case in question. Therefore, as entity does exist, there never was a time in which it did not exist; and, consequently, there is something or other of which it may be affirmed that it is eternal and uncreated.

THE CREATION OF ENTITY IMPOSSIBLE.—We have seen that creation is impossible without the agency of entity. It is equally impossible by its means.

No entity can give that which it has not got to give. An entity at rest cannot give motion, and an entity in motion can only give such motion as it possesses. All that an entity can possess is itself and its properties ; and it cannot give these to that which does not exist to receive them, and even if it could this would be *transfer*, not *origination*.

Again, creation, if possible, would be causation, and causation is mechanism, and all that mechanism can do, as already shown, is to distribute force and material ; and creation is not the distribution of that which already exists, but the origination of that which does not exist. Therefore the creation of entity, the origination of something out of nothing, is impossible under every aspect—impossible to entity and *à fortiori* to non-entity. Therefore all that now exists has existed from eternity as to its essence, as to its substance.

THE DESTRUCTION OF ENTITY IMPOSSIBLE.—The only power which one entity possesses over another or over itself, in a destructive sense, is the power of propulsion, of transfer, of distribution, of removal from one point of space to another point of space ; but this is not annihilation. Annihilation involves the removal of entity out of all space absolutely, and, as space is infinite, this is impossible. Besides, removal is change, motion. While it lasts the entity is in motion ; when it ceases the entity is at rest. This is transfer, not destruction. Entity, therefore, can neither be originated nor destroyed.

MOTION ETERNAL AND UNCREATED.—An entity at rest cannot confer motion ; therefore, had there ever been a time when motion did not exist—that is to say, when there were not moving entities—all existences would have continued eternally motionless. As this is not the condition of things, there never could have been a time when there were not moving entities. On some future occasion we may have to consider whether motion may be destroyed.

MIND, OR PERCEPTIVITY, IS ETERNAL, UNCREATED, AND INDESTRUCTIBLE.—All the varied powers of mind are but different forms or modifications of perception or sensation ; and these terms do not designate entities, but properties or conditions of entity.

Perception is the act of perceiving ; it is, therefore, a *condition* of entity ; perceptivity is the capability of being in this condition, therefore it is a *property* of entity. Had there ever been a time when no entity possessed this property, the property could never have come into existence, since, as before, it could not have come without a cause, while all causation is transfer, not origination. Therefore, as perceptivity exists, there never was a time when it did not exist.

Mind, therefore, is not a product of organization, but a primary attribute

of being. Organization does not create, it simply combines, condenses, and diversifies that which already exists. It does for percipient entity what it does for non-percipient entity, assuming that any such entity exists in an absolute sense.

Perceptivity is a positive attribute, and therefore a superaddition to non-perceptivity; a perceptive entity, therefore, has every property necessary to the condition of entity, such as substance and the necessary properties of substance—dimensions, length, breadth, thickness, form, and the power of occupying place to the exclusion of other entities, and also mobility, or the power of receiving and giving motion. It is a mechanism and a cause, and its force and diversity depend on aggregation and structure.

This is the only rational mode of conceiving of thinking entity. The definitions and limitations of metaphysicians are a mere play upon abstractions which, when required to do the real work of the world, at once break down or dissolve into mist.

Assuming, then, for the moment, what, however, we have not yet proved—viz., that there are two primary kinds of entity in the universe—percipient entity and non-percipient entity; in other words, spirit and matter—it is clear that the one as the other must possess every *necessary* attribute of entity, and must be practically treated as a great working power, having motion, force, resistance, size, form, place, &c., &c., but not necessarily solidity, since this implies the cessation of motion either relatively or absolutely. Neither rest nor motion are inherent properties of entity, but mobility, or the power of being in motion, is so. Actual motion and rest are simply the conditions in which entity may exist, and in one of which it must exist, though it may alternate between them, while it is simply a question of fact whether some entities may not always have been moving, while others have always been at rest. All we have thus far proved is that there never was a time in which there were not some entities in motion.

If, on the other hand, there be but one primary kind of entity, that entity should rather be termed *spirit* than matter, since it should rather derive its name from the higher than from the lower characteristics of being—namely, tangibility, hardness, and immobility. In this view entity is spiritual when its particles are free to move under impressions and thus display their perceptivity, while it is material when its particles are fixed by the compressions which chemical combinations and such like structural phenomena produce. And thus, as in the case of form and mechanism, and possibly of colour and sound also, we should have one fundamental unity developing into two primary sections; so that physical

science would at last reconcile the two great conflicting schools of philosophy by showing that, as in many other disputes, they both are right and both are wrong. But we have not yet proved that things are thus. Should they, however, turn out to be so, then we might say that matter was dead spirit, while spirit is living matter, or, otherwise, that matter is dead substance and spirit living substance; and that, in order that matter should return to the world of life, it must go through a cycle of chemical dissolutions until its ultimate particles have been finally liberated from the bonds of compression, and are once more free to tremble and to feel.

POSSIBILITIES OF ENTITY.—It is impossible to understand how anything can have existed eternally, but it is equally impossible to understand how anything can exist at all. We know, however, as a matter of fact, that things do exist, and we have proved that things always have existed; for the contrary suppositions necessitate conclusions which are self-contradictory, and therefore absurd. In this state of things I see no present possibility of limiting the number or nature of the kinds of primary entity which may exist in the abysses of space. I only see the means of limiting those which enter into the composition of that universe on which science has to operate. Were any one to assert that in some portion of space there has existed from eternity a vast sphere composed of great solid cubes, pyramids, cones, and cylinders, all firmly jammed together and perfectly useless, I see no means of refuting such a statement, absurd as it evidently seems. At the same time there is an equal dearth of evidence in its favour, and no one, therefore, would think of accepting it without some kind of inducement. The illustration, however, sufficiently shows how entirely powerless we are, or seem to be, on this particular point. But the moment that particular attributes or acts are assigned to any entity our statements come within the legitimate sphere of criticism, and science has a right to require that they shall not be self-contradictory.

MECHANISTIC FORMATION.—There are but two categories of mechanisms—the vital and the non-vital; and these are clearly distinct in the modes of their formation. The materials out of which a non-vital mechanism is formed are essentially passive as to formation, and possess no power of self-adjustment. Such mechanisms therefore require to be put together by some external agency, and when precise and complex, and in exact proportion to their precision and complexity, and the multiplicity and variety of their adjustments and correlations, they necessitate, on the part of this agency, a proportionate expenditure of skill and knowledge. Such mechanisms are unequivocally results of intelligent action.

Vital mechanisms, on the contrary, are essentially spontaneous in their

formation. Starting with a primary germ, they absorb materials and force, and so adjust these that they gradually advance into higher and higher forms, till they run through the predetermined course marked out by their original structure. They are not only active in all their stages, but the materials of which they are formed are also active and possess, besides, some power of self-adjustment. Their activity they owe to the fact of their being in a fluid state, or borne along by fluids and the forces acting in and on them; and their power of self-adjustment they owe to the fact of their being under the dominion of chemical affinities, while non-vital mechanisms are, in the main, constructed of solids, and require to be as much as possible out of the reach of chemical forces.

It is clear that chemical affinities, which cause one thing to be refused and another to be accepted and amalgamated with, amount, in so far as they go, to a genuine regulation, however automatic and unconscious it may be. And when we see, besides, that the proportions in which bodies unite are rigidly definite and peculiar, and the combinations formed equally so, it is obvious that we have here a very great amount of positive regulation and selection, however low and simple may be its order. When, in addition, the germ itself is a more or less complex mechanism, as it must be in the case of the more advanced organisms, its structural attributes give it regulative powers of still higher order. If anything more be wanting, it must be supplied by the peculiar nature of the enveloping medium, or by some intelligent external agent.

From all this, it is clear that vital mechanisms, in the higher sense of the term, can only be formed under very special conditions. All their early development must take place in a fluid medium, and that medium must be of such a kind as to supply the materials and forces which they need for action and growth, while withholding those that would be seriously injurious to them. Now there are but two modes in which this external correlation can be produced. It must either be produced by the action of an external and intelligent agent, distinct alike from the developing structure and its surrounding media, and arranging these media on the principles on which non-vital mechanisms are formed, or this correlation is mechanistic, in the higher sense of the term, and the developing organism is formed within an embracing organism which supplies to it the required conditions of growth—adequate forces, appropriate material, and the exclusion of what is injurious, where this exclusion is beyond the powers of the organism itself. We see, in fact, that countless organisms are formed under these conditions, in their earlier stages. They develop within the body of a parent—mechanism, which is in part specially constructed with reference to their origination, growth, and protection; and we have already seen that mechanism

is competent to the production of any possible result whatever, if it be of adequate order and of adequate suitability; for there is nothing higher or lower than mechanism. And, as certain organisms are thus formed, it follows from the law of causation that there is no other mode in which such organisms could be formed; for only like causes can produce like effects. All organisms, therefore, in proportion to their degrees of resemblance to these, must be more or less similarly formed.

THE EARTH A LIVING ORGANISM.—But no organism passes its whole life within the body of a parent; even the highest known organism—man—only passes some nine or ten months of a life, which may reach to a century, thus imprisoned; and after liberation, the external correlation is still imperatively needed, and continues to be needed to the latest hour of existence. If the higher animals possess, in their advanced structures, the perfection of their instincts, and their added intelligence, proportionally great regulative powers, they have no power whatever of regulating the cosmic conditions in which they exist: all they can do is to adapt themselves to these conditions as best they may. Either, then, these conditions have been mechanistically put together by the direct personal action of an external intelligence, as in the formation of non-vital structures, or they must have come spontaneously by the laws of growth; and in that case the world itself is a living organism.

The former hypothesis is clearly inadmissible. If the world had been formed on the principles of non-vital mechanism, it would have had to be formed in aggregate masses and of fully prepared materials, and, until it was fully constructed, it could not act at all, and when fully constructed its structure would continue unchanged, like that of a house, a watch, or a steam-engine, or, if alteration was needed, its working would have to be stopped while the mechanist took more or less of it to pieces in order to correlate it with the new requirements.

It is perfectly evident that no such phenomena as these could possibly take place in the formation or modification of a world. A stoppage of this kind would be instant destruction to all living things, root and branch, parent and child, and universal disintegration to the more material portions of the structure. It is equally evident that change has taken place in this world, and is incessantly taking place, and has been taking place from the very beginning, and yet that all this change is so wonderfully adjusted that the mighty structure advances and progresses from age to age, through millions of years, in majestic aggregate harmony, never for a moment ceasing to be a suitable theatre for myriad forms of life. If so, then the earth is beyond all question a living organism, and we, parents and children alike, are portions of it, and therefore have we the conditions neces-

sary for our development. There are but two alternatives in the case. One is clearly and even absurdly untenable. The other, therefore, is inevitable, but not only so: it is also clearly consistent and fit under every point of view; and we shall hereafter be able to demonstrate that the earth, as a simple matter of fact, presents all the necessary characteristics and concomitants, not only of a living organism, but also of an organism of very high order.

THE STRUCTURAL UNIVERSE A LIVING ORGANISM.—But if the earth be a living organism, other and greater necessities are entailed. It must be subject to all the essential requirements and conditions of growth, maturity, and decay. It must be developed from a germ of adequate order, and receive its primary supplies of force and material from some parent world, and those of its subsequent long infancy and maturity from some great enveloping organism. This organism can be no other than that which, according to our present knowledge, we term the universe, the *macrocosm*, or great world, of which planets, and moons, and suns are but the formative atoms, the blood globules, so to speak, of some wondrous structure.

But this, it will be said, necessitates a universe beyond the universe—in fact, an infinite series of embracing universes, each immeasurably larger and grander than the previous one. If it did, the position would be manifestly absurd; for in such a case the outside sphere would have to be the parent and originator of all within—and in an infinite series there can be neither outside nor first. This state of things, therefore, is clearly out of the question; and as the other is clearly within it, clearly inevitable, there must be some way of satisfactorily escaping from the difficulties in which it places us. There is such a way, and the further development of our subject will gradually and satisfactorily lead us up to it in due course.

Here then we are suddenly brought, in the course of a few pages, into the presence of results of transcendent grandeur by the simple and easy path of methodical demonstration. We have only uttered familiar truths, and traced an argument which any educated man, who takes an interest in the matter, may easily follow and successfully check; and yet, if the argument be genuine, and the results obtained sound, it is clear that a new career has been opened out to science, that a new value has been given to familiar things, and that truths which seemed for ever shut out from human vision must ere long be catalogued amongst the most unquestionable portions of our knowledge. And still we have hardly as yet passed the threshold of our subject.

Is all this, or any portion of it, foreign to the science of *Ethnology*?

Assuredly not. We have been tracing the fundamental laws of life and growth; how else should we reach those of human life? In doing this we have found that these laws are those of universal existence, whether vital or non-vital. In subsequently following the special stream of vital laws we have been startled by the discovery that even worlds and universes enter into the great category of living things, and thus at once come, in all the leading features of their history, within the clear scope of human science, and that man can now wield over them the magic of a law more potent than any spell of which fancy has ever dreamed—the great clear law of all phenomena—*Only like causes can produce like effects*. And thus Biology and Cosmology have become convertible terms, identical sciences. A little farther on and we shall clearly see that Ethnology also is but an additional synonym. It is surely well worth our while to encounter the drudgery of an alphabet which can thus place at our command the magnificent volume of the Universe.

L. BURKE.

(*To be continued in our next.*)

BROCA ON THE SEAT OF THE FACULTY OF ARTICULATE LANGUAGE.

In the present state of ethnological science the Anthropological Society of Paris must be considered as a very remarkable body. Moderate in numbers, and with a low subscription, it has nevertheless contrived to do a very large amount of work, and to do it well, and has displayed throughout, and is still displaying, an energy and activity worthy of all praise. Not only has it numbered amongst its members some of the most eminent names in the sciences more immediately connected with its pursuits, but it has had these distinguished men as working members—not ornaments merely, but earnest labourers.

The last published part of the Bulletins of the Society (part 3, vol. vi., June to July, 1865) fully keeps up the interest of its predecessors; and among its most valuable contributions is a most interesting paper by M. Broca, "On the Seat of the Faculty of Articulate Language." The writer brings together a number of important facts tending to prove that *aphemia*, or the loss of the power of articulate speech without paralysis of the organs of articulation or loss of intelligence, is intimately connected with injury of the third frontal circumvolution of the brain; but what makes the matter peculiarly curious is that, in the great majority of these cases, the injury was always in the left hemisphere of the brain, while in many

instances profound lesions of the same convolution in the right hemisphere were found without any accompanying loss of speech; and very naturally these cases were offered as proofs of the fallacy of M.^r Broca's view that the third convolution of the *left* hemisphere was the seat of the organ of language.

At the first aspect these facts are not only very unexpected, but very puzzling also; but M. Broca handles them with great judgment, and leads us out of the mist in a clear and satisfactory manner. He first disclaims all idea of drawing a functional difference between the two hemispheres of the brain; for we everywhere else find it a law that symmetrical organs have identical functions, as in the case of the organs of sense, of the hands and feet, and so on. He next points to the fact that the action of the brain is crossed, so that it is the left hemisphere which regulates the movements of the right side of the body, and the right hemisphere which guides those of the left side. Hence, as nearly all persons are right-handed, it is the left hemisphere of the brain which takes the lead in all voluntary phenomena.

He dwells in detail on this peculiarity of right-handedness, shows that it cannot be accounted for by accident or inheritance, and that it is accompanied by a positive increase of strength on the right side of the body, and then alludes to an interesting fact brought to light by Gratiolet—viz., that in the development of the brain the convolutions of the left hemisphere are in advance of those of the right. The former are already traced out at a time when the latter are not yet indicated, so that the left hemisphere is more precocious than the right. This fact fully accounts for the predisposition to use by preference the right side of the body.

M. Broca next considers the action of the brain on the complex external organism of speech, and shows that there is something parallel in the loss of speech by injury of the left hemisphere to the loss of the power of writing when the right hand has been destroyed or paralyzed. The left hand is intrinsically capable of writing, but it has not been trained, and a deal of pains must be taken before it can be fit to exercise this species of movement with propriety and facility. So with the brain. M. Broca fully admits its inherent power on the one side as on the other; but it is quite intelligible that a particular organ, which has always taken a subordinate part, never taken the lead, should be, as it were, bewildered, and unable to act consistently when its directing power has become disabled. This may look fanciful, but if it be not substantially the explanation of the phenomenon, we confess we can see no other solution any more than M. Broca.

According to this view, however, the convolution of the right hemi-

sphere ought still to retain its natural power of directing the function of speech, and only be deficient in practice; while, in the case of congenital absence or malformation of the left convolution, while that on the right side was normal, the function of language might still be expected to be manifested. On both points M. Broca maintains that such is the fact. He has shown, by the result of some brief and imperfect experiments instituted by himself, that persons who have lost the use of speech through lesion of the left convolution may be gradually made to speak by a judicious and long-continued course of training after the manner of children; and he also shows why the difficulties of such training are much enhanced in the case of adults, who have less pliability, less tendency to imitation, and more to distract their attention than children, while they cannot have the incessant and loving attention which smooths the path of knowledge for the infant mind.

As to the other point, a very curious fact gives a decisive confirmation to the views of M. Broca. At the *post-mortem* examination of a woman of forty-seven years of age, who died, the previous year, at the Salpêtrière, and had been epileptic from her earliest infancy, the third frontal convolution of the left hemisphere was completely wanting, as well as the inferior parietal convolution and the superior temporo-sphenoidal convolution. There was here, in fact, a complete congenital defect, an arrest of development, as well as some corresponding deficiencies in other directions; but in general the rest of the left hemisphere was healthy, though not normal in development, for all its parts were much less voluminous than the corresponding portions of the right. This latter weighed, without its membranes, 540 grammes, while the left weighed only 297; and this difference of 243 grammes is very great in a case in which the entire cephalic mass, with its membranes, only weighed 1045 grammes. In such circumstances it was but natural that all the functions of the left hemisphere should be imperfect. Hence the right arm and leg were feeble and had a blunted sensibility; they were also shortened, and of less volume than those of the opposite side; the right hand was nearly useless, and was bent towards the fore-arm, and the woman had a perceptible limp. She also sewed with her left hand.

Notwithstanding so considerable an amount of malformation, this woman was by no means an idiot. She had received but little instruction, still she could read, and employed herself in the labours of her station, which was that of a servant; and she spoke properly, and expressed herself without difficulty.

Here it was clear that the functions in question were performed by the right frontal convolution, as must also have been the case in the few

other recorded instances in which injury to the left convolution was not followed by loss of speech. And even should there prove to be some exceptional instances in which aphemia has been produced by lesion of the right frontal convolutions, this would only be in harmony with the fact that there are left-handed people in the world, and therefore cases in which the right hemisphere of the brain is dominant.

Altogether M. Broca has made out a very strong and interesting case, and we regret that we cannot give more than this brief analysis of his valuable paper. But there is a higher question at stake than the one discussed by M. Broca. If it be true that a particular convolution in the anterior lobe of the brain is thus intimately connected with a special mental function, then the fact that the brain is not a single but an aggregate organ is placed beyond reasonable doubt; for there is nothing in the particular talent under consideration which, more than many others, demands a special section of the brain for its origination and control.

There is, besides, great encouragement in the evidence which has been collected by M. Broca. It shows that with careful scrutiny other special powers might be watched in their relations with special cerebral injuries, and that thus, in time, a mass of evidence could be brought to bear on the physiology of the brain which would leave no room for scepticism as to the fact of its divisibility and as to the general character of the functions of its leading sections.

M. Broca's paper has evidently made a due impression on the Anthropological Society. It has already drawn forth a paper by M. Gaussin, "On the Faculty of Expression," in which the subject is ably discussed and some objections are urged against M. Broca's views; and it has also elicited a short paper from M. Dally, under the title of "Physiological Questions;" and the subject, we trust, will not be allowed to drop through.

ETHNOLOGICAL SOCIETY.

At the meeting of the Society on the 13th instant the principal paper was contributed by the President, on the subject of the "Mental and Physical Characteristics of the European and Asiatic Races." It was a very able paper, condensing a large mass of information and supporting a thesis which, a few years ago, would have been rank scientific heresy of the deepest dye. Mr. Crawfurd was not satisfied with insisting on the *de facto* and present superiority of the European family—for few would now venture to question so obvious a position—but he insisted on an inherent difference between these two sections of the Old World, and claimed a great positive *intrinsic* superiority on the side of the European. Appealing to the past as well as to the present, he endeavoured to show that history, as well

as archæology, clearly proved that, whenever we could institute a fair comparison, the advantage was always on the side of the European. In the case of the Hebrew race he made an exception, and contended that the Jew, though residing in Asia, virtually belonged to the European family.

So far Mr. Crawfurd had a strong case, but in emphasizing Asiatic defects, we think, he pushed matters a good deal too far; farther, certainly, than Asiatic flesh and blood could well be expected to bear; and, indeed, there were Europeans about us evidently brim-full of objections, and there is no knowing what overhauling our own race might not have got from itself, had time permitted adequate discussion; but, unfortunately for the cause, there was another paper to be read, and the discussion had to be limited. General Briggs and General Balfour made objections, as did also Mr. Farrar, and a few remarks were offered by Mr. Pool; but the Asiatic man found an able champion in Dadabhai Naoroji, a Parsee gentleman, who, in a very clever and humorous speech, given with all the ease and fluency of a native Englishman, replied to several of the arguments relied on by Mr. Crawfurd, and concluded by giving the impressions formed by a friend of his as the results of his observations on the English character. Here was the man painted by the lion, the European by the Asiatic; and the portraiture elicited a hearty burst of merriment.

A second and very interesting paper in connection with the Niger Expedition was read by Mr. V. Robins, and illustrated by a large number of very characteristic paintings of natives, with specimens of dress, &c. Each paper well deserved an entire evening to itself, and Mr. Crawfurd's indeed might well have been followed by an adjourned debate.

For the 27th instant two papers are on the card, one by Sir John Lubbock and Mr. Frederick Lubbock, "On the True Assignment of the Bronze Weapons, &c., supposed to indicate a Bronze Age in Western Europe," and the other "On the Origin and History of Written Language," by the President, John Crawfurd, Esq.

RECEIVED.

Bulletins de la Société d'Anthropologie de Paris. Tome Sixième, 3e Fascicule. Juin à Juillet. Paris: Victor Masson et Fils, 1865.

Elements of Social Science. London: Truelove, 1865.

Gogoniant Hynafol y Cymmyr: sef Arddangosiad o Gyfrin-ddysg Hynaf y Byd allan o Gyfrinon Gorsedd Beirdd Cyntefigion Ynis Prydain. Pontypridd.

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